THE REMAINS OF AGRICULTURE: AGRARIAN PROJECTS, LIVELIHOODS, AND LANDSCAPE IN EAST HAWAIʻI, HAWAIʻI ISLAND

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Dedication

For my family who has been incredibly supportive throughout this process and taught me the meaning of dedication and love. For Charles who is the best; the best friend and the best wingman I could ever imagine. And for Charlie Lake; the little person that stole our hearts.

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Abstract

This dissertation considers the role of diversified agriculture in the post-plantation rural landscape of Hawaiʻi County, Hawaiʻi, by examining the intersection between Hawaiʻi's agrarian discourse with the realities of agricultural livelihoods and lifestyles in East Hawaiʻi. It uses a political ecology approach to examine how broader structural and discursive processes at the regional level work to shape local actor's interactions with their environment, and in turn how place-based processes work to influence the larger agrarian discourse and approaches to resource-based issues. This work is based on two years of field work in East Hawaiʻi, Hawaiʻi County, and an additional five years working in the agriculture industry as a farm laborer and agricultural business developer. This research seeks to understand the disproportionate social and ideological significance the industry has to state and county policy makers and rural residents, given its relatively low contribution to the Hawaiʻi's overall economy. This work highlights the opportunities and challenges of re-creating an agricultural industry in Hawaiʻi through an examination of land-based projects initiated by large landowners in East Hawaiʻi, including the State Department of Agriculture and the County of Hawaiʻi. It finds that the push to create a diversified agricultural economy in East Hawaiʻi has largely been a socio-political project of major landowners, with their agricultural initiatives having several intended and unintended consequences for rural communities. This work suggests that Hawaiʻi Island's new diversified agricultural industry was largely *not* born from a demand for agricultural land or a demand for locally-grown food, however as the familiarity and popularity of local food increases, and agriculture becomes a desirable occupation and lifestyle, the industry in East Hawaiʻi, and across the state, is beginning to grow. Consequently, the re-creation (or creation) of an agrarian economy in East Hawaiʻi – reliant upon the slow and steady development of markets, infrastructure, and human capacity – would benefit from a shift in how we define and understand 'agriculture' in a Hawaiʻi context, toward one that accounts for diverse agricultural economies, the role of all rural residents in shaping a new agrarian future, and the unique evolution of Hawaiʻi's rural places.

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CHAPTER 1. HAWAIʻI'S RURAL TRANSFORMATION: AN INTRODUCTION TO THE RESEARCH

Introduction

This research came out of an interest in the diverse ways that rural communities encourage and engage in agricultural production and the means by which agrarian livelihoods and lifestyles are built and sustained. By the late 1990s Hawaiʻi's sugarcane industry largely disappeared from the islands, leaving thousands of acres of rural land available for new forms of agricultural production and rural development. The demand for rural land varies throughout the state, dependent on each island's population density, development pressures, and the existing rural-agrarian community. On the Island of Hawaiʻi[1], where the majority of the state's agriculturally productive lands are located, the transition from plantation to diversified agriculture led to a new landscape of agricultural practitioners, including landed gentlemen and hobby farmers, leaseholders, and commercial-scale producers. The evolution in land tenure arrangements has led to the initiation of unique land-based programs geared towards the development of viable agricultural economies which have had intended outcomes and unintended consequences for the local communities in which they are being carried out.

In 2009 I relocated to Hawaiʻi Island to explore research questions related to the gentrification of Hawaiʻi's countryside and the role that 'amenity migrants' were playing in Hawaiʻi's new rural landscapes. Over the course of the next six months I realized that there were larger, more encompassing themes to consider in understanding Hawaiʻi's post-sugar landscape, which juxtaposed the agrarian discourses of the agricultural projects pursued by land-owning institutions with the realities being expressed by those engaged in agricultural livelihoods and lifestyles. Consequently I shifted the purpose of the research to an examination of the ideological and material role of agriculture in post-plantation Hawaiʻi through a consideration of the pressures

[1] The Island of Hawaiʻi is the largest of the Main Hawaiian Islands and is therefore known locally as the Big Island. Hawaiʻi County is one of five counties in the state of Hawaiʻi and encompasses only one island, the Big Island. I will refer to the Big Island as Hawaiʻi Island or Hawaiʻi County throughout this document; when the word "Hawaiʻi" is used alone, it is in reference to the State of Hawaiʻi. When the term "Hawaiian" is used it is in reference to an ethnic Hawaiian, whereas agricultural products are referred to as Hawaiʻi's food or Hawaiʻi's agriculture.

and players that have worked to shape diversified agriculture in East Hawaiʻi, Hawaiʻi Island. Lessons learned through this research with rural residents, land-owning institutions, and Hawaiʻi Island farmers provided invaluable insight into the challenges and opportunities inherent in Hawaiʻi's diversified agricultural industry. By 2016, when this research concluded, the last sugar plantation in the state, located on the island of Maui, had announced its closure, bringing Hawaiʻi's era of plantation agricultural to an end, and begging the question – what is the future of agriculture in Hawaiʻi?

This research suggests that changes in land tenure and management since the closure of Hawaiʻi Island's sugarcane industry have both helped and hindered the development of the island's diversified agricultural industry. In some areas of East Hawaiʻi large landowners (e.g., the State, County, and Kamehameha Schools) have assumed responsibility for agricultural land in place of the plantations, facilitating the preservation of rural space by allowing individuals interested in agriculture to access leasehold parcels to pursue diversified agricultural projects. Additionally, these landowners are working to provide other support structures to facilitate industry development. However some local agricultural stakeholders and residents interviewed for this project argue that this tenure structure has impeded the development of a diversified agricultural economy and set up a system of quasi-serfdom where unfavorable conditions of lease policies and managerial decisions of large landowners pose hurdles to viable agricultural operations. In other areas of East Hawaiʻi, post-sugar land tenure was driven by the land market. At the time of closing, some sugar companies provided lands to former plantation workers at a reduced cost, but a large portion of these parcels were later sold to newcomers interested in living in Hawaiʻi, with varying degrees of commitment to the practice of agriculture.

This research also examines the role of amenity migrants in Hawaiʻi's agricultural spaces. Contemporary literature on rural gentrification typically views the contribution of these residents as negative; however this research suggests that this oversimplification may miss some of the important contributions these residents make to the community and farming economies. Amenity migrants increase demand for locally-grown products, increase investment in agricultural infrastructure and development, contribute to local conversations concerning industry development, and preserve agricultural lands through the production of traditional and specialty crops. Current discussions that focus on the viability of agriculture in purely an

economic sense may be missing some of the unique contributions that new island residents are making to rural landscapes through diverse agrarian strategies and economies.

This introductory chapter explores debates on rural change and new rural areas, contextualized for Hawaiʻi and Hawaiʻi Island in particular, including processes related to post-productive and consumptive landscapes, rural gentrification, and diverse economies. This chapter also provides an overview of the field site and the methodology used to explore the research questions, and concludes with a chapter synopsis.

Research Questions

In bringing into focus the realities of engaging East Hawaiʻi's post-plantation agricultural lands and communities in diversified agricultural production, this research draws from two related bodies of literature, scholarly work on new rural areas and the political economy of contemporary agricultural development. This research was guided by political ecology's theories concerning the dynamics of knowledge and power in shaping local actors' relationships to their environment (Bryant and Bailey, 1997; Peet and Watts, 2004; Li, 1996). According to Watts (1983), political economy's concern with production, as the "processual link between economy and environment (the appropriation of nature) and between economy and the sociocultural system as a whole", provides researchers with the ability to understand transformations in modes of production and changing structures in place. Through examining evolutions in land ownership coupled with the changing character of food production in post-plantation Hawaiʻi, this research works to broadly understand the new socio-economic structures appearing across Hawaiʻi's countryside.

Dissatisfaction with the dominance of political economic theory as a means for explaining societal patterns, which largely excluded the role of culture in mediating decision-making, contributed to geography's cultural turn, a movement that, according to Morris and Evans (2004), has neglected the agricultural sector. This research responds to calls to re-discover the role of culture in mediating processes and relations in agriculture by ethnographically investigating the full range of individuals and subcultures associated with farming activities; this will facilitate an understanding of the motivations of individuals and community groups that hold

decision-making power and influence over the directional development of rural policies and places (Morris and Evans, 2004).

The working questions are:

- How have the agrarian political economy and patterns of land ownership of rural East Hawaiʻi changed in the post-plantation landscape? How do residents participate as producers in the current agrarian economy?
- How have institutionally-driven agricultural projects and land tenure arrangements intentionally and unintentionally impacted local agrarian communities, working to shape the land, livelihoods, and lifestyles of rural residents? And to what extent are the projects and arrangements compatible with local agrarian economic and social realities?
- How do large landowners (e.g., the State, the County of Hawaiʻi) and rural residents position and articulate themselves within the local agrarian discourse? How do they express their agrarian visions through narrations of place and practice?

Rural and Agrarian Change

> All in all, new non-farm neighbors seem like reasonably nice people. They are drawn to rural areas by values that mirror traditional rural lifestyles. … The woods, fields, animals, crops and the farmstead landscape over which farmers are stewards is what attracted them to the countryside in the first place. (Furuseth and Lapping, 1999)

As early as 1957 English scholars (Saville, 1957, In Goodman and Redclift, 1991) were beginning to express concern over the depopulation of the countryside and the muddying of the term ‘rural’ as the boundaries between urban and rural areas became less distinct. When the production potential of modern farmers began to escalate in the 1930s, driven upward by technological advances in agriculture, the consolidation of farmland became an effective strategy to advance the productive potential of the land. Many farmers who were not successful in expanding were eventually driven out of production, choosing to sell their land to other farmers or developers, which began to open up the countryside to other social classes and types of capital.

The changing socio-economic nature of the countryside has had diverse impacts on rural economies and communities, and contemporary conceptions of rural places. The opportunities and challenges faced by today's agricultural producers can be understood in part by examining the trends being observed in the countryside: 1) a shift in the representation of the countryside as *rural* or *post-productive* instead of *agricultural*; 2) the role of ex-urban migration and amenity migrants; 3) the social and economic restructuring of the rural community; 4) shifts in consumer behavior; 5) changes in farming techniques to include more sustainable practices; and 6) new forms of rural governance characterized by reduced financial state support, and enhanced rural and agricultural planning (Duncan and Duncan, 2001; Cloke and Goodwin, 1992; Lowe et al., 1993; Marsden et al., 1993; Pretty, 1995; Halfacree and Boyle, 1998; Potter, 1998; Moss, 2006; McCarthy, 2008; Furuseth and Lapping, 1999). Of primary concern to this research are the shifting socio-economic importance of agriculture to Hawai'i's rural communities, and the impacts of newcomers on rural landscapes, and on agriculture in particular.

As people began to move out of the countryside and into urban communities and peri-urban areas, the opposite pattern was emerging – a significant inflow of exurban residents into the countryside. Cloke and Little (1990) were among the first to begin discussing these patterns of rural change as a classist movement, or gentrification, which was followed by significant work on migration patterns and rural social and economic restructuring, and its impact on rural communities (Nelson, 2001; Jarosz and Lawson, 2002; Lawrence, et al., 1990; Marsden, 1998; Marsden et al., 1990). Left out of these discussions however was an examination of the movement of capital, as opposed to people, into gentrified rural spaces (Phillips, 2005), and its relationship to patterns and networks of consumption. According to Phillips (2005), agriculturally post-productive spaces experience "the de-valorisation of land and building with respect to agricultural production" and an:

> [U]neven revalorisation with respect to other, *more consumption orientated, capital networks* (emphasis added). Rural gentrification likewise may be seen as one form of the revalorisation of resources and spaces which have become seen as unproductive or marginal to agrarian capital, and indeed a variety of other rural capitals.

The idea of the 'consumption of the countryside', that exurban migrants moving into rural areas were doing so because of their values associated with rural areas (Goodman and Redclift, 1991;

Marsden, 1999), surfaced alongside discussions about the gentrification of the countryside. This opened the door for new conversations about the role of amenity migrants in rural areas and the effects their presence was having on communities, rural economies, and the land itself.

Since the 1980s literature on rural change has examined the post-productive nature of agricultural landscapes in the United Kingdom and the United States, in contrast to earlier productivist regimes that emphasized intensive, industrially driven agriculture, typically associated with the production of commodity products (Lowe et al., 1993). As literature on post-productive landscapes has largely been limited to the United Kingdom, and subsequently the United States, many question it's applicability in areas still reliant on commodity production, particularly in the global south (McCarthy, 2005), and where productive agriculture remains an important component of rural areas. The process of delineating the countryside into productive or post-productive spheres fails to capture both the market and nonmarket values – such as those associated with ecosystem services, aesthetics, and amenities – that exist side-by-side in the same countryside (McCarthy, 2005; Wilson, 2001), and in some cases on the same farm property. Instead of framing rural change as 'post-productivist,' critics proposed the concept of 'multifunctionality' to better capture the diversity of material practices and values in today's agricultural spaces (Marsden, 1999; Wilson, 2001; Evans et al., 2002; Goodman, 2004; McCarthy, 2005). However, as multifunctionality matured, the logic and feasibility of restructuring agricultural policies based on the principles of multifunctionality have been questioned. Policy makers have faced challenges, particularly in Europe, where concerns have surfaced regarding the effects on commodity pricing caused by subsidies and other agri-environmental protections based on multifunctionality (Potter and Burney, 2002; Dobbs and Pretty, 2004; Bills and Gross, 2005). It has been suggested that multifunctional policies aimed solely at farms fail to consider the role of other natural resource industries, and rural actors, that contribute different positive (and negative) externalities with different implications for multifunctionality and rural development (McCarthy, 2005). Additionally, multifunctional policies tend to enroll economically marginal producers, versus intensive commodity producers, limiting the extent of potential benefits from agri-environmental policies (Dobbs and Pretty, 2004; McCarthy, 2005).

The literature moved past 'productivism' with the realization that the value of land extended beyond measurements of tons per hectare or dollar per acre; similarly scholarship moved past post-productivist landscapes when the nonmarket values of agricultural land and rural areas became increasingly evident. Today, while some scholars are rethinking the policy implications of multifunctionality and the difficulties associated with the monetary valuation of the countryside, research is progressing at a slow pace towards alternative understandings of contemporary productive rural landscapes, understandings that consider agricultural production as stewardship, intellectually creative, and imbued with meaning and value.

It is becoming increasingly important to examine these new rural areas as they become characterized by diverse productive and consumptive interests, the latter which has come to play a powerful role in directing change, and the negative and positive impacts that follow from the spatial juxtaposition of these uses. The bulk of the contemporary work on rural change centers on the migration of people into the countryside and its – typically negative – impact on rural communities through social segregation, the fragmentation of agricultural land through development and non-commercial agricultural practices, and rising land prices (Wolf, 1981; Daniels, 1986; Smith and Phillips, 2001; Walker and Fortmann, 2003; Duncan and Duncan, 2003; Duncan and Duncan, 2004; Ghose, 2004; Tan et al., 2005; Darling, 2005; Moss, 2006; Davis, 2006; McCarthy, 2008). In particular, Duncan and Duncan (2003) emphasize how landscape preservation ideals can be used by the elite to manipulate the development of place, using economic and social capital to "incorporate and assimilate some identities while excluding or erasing others".

> A seemingly innocent appreciation of landscapes and desire to protect local history and nature can act as a subtle but highly effective mechanism of exclusion and reaffirmation of class identity. (Duncan and Duncan, 2003)

Slow to gain momentum are conversations that concern the environmental values and priorities of some exurban migrants and their potential to contribute to, and help transition in, a new era in productive agriculture (Walker and Fortmann, 2003; Cadieux, 2005; McCarthy, 2008).

Research in diverse economies (Gibson-Graham, 2008; Healy, 2009) serves to widen the political economic lens through which rural economies are understood by dropping a "structural approach to social explanation", thereby allowing scholars to view 'marginal' economic

activities as having the potential to be dynamic drivers of non-capitalist (as well as capitalist) rural change (Gibson-Graham, 2008). The diverse engagement of individuals, from in-migrants to long-time residents, observed through this research is evidence that farms are created for a multitude of reasons and consequently provide a diverse suite of benefits to agrarian communities. The diversity in farm owners and farm typology – from hobby farms, to gentlemen farms, subsistence farms, and commercial farms – encourages us to see that these *are all farms*; some of them have classic economic value, while others force us to see their intangible values – and many have both.

Hawaiʻi's Productive and Post-Productive Landscapes

The importance of agricultural production to the State of Hawaiʻi's economy has diminished substantially since the decline of the sugar and pineapple plantations in the late-twentieth century. While a total of 1.2% of the state's gross domestic productive was derived from agriculture in 1997, dropping to 0.9% in 2014 (State of Hawaiʻi Data Book, 2013), the industry retains a disproportionate social and ideological significance to state and county policy makers and rural residents (Suryanata and Lowry, 2016), as evidence in policy and planning documents over the last several decades.

The social and ideological importance of agriculture has become increasingly recognized throughout the U.S. and Europe as the role of traditional commercial agriculture has become less prominent and land use competition has increased in rural areas. In the late 20th century Goodman and Redclift (1991) observed that modern urban society had "elevated 'rural' values to the ideological level" as consumption was becoming a more important characteristic of the countryside. Despite the shifts occurring along demographic and economic lines in Hawaiʻi's rural areas, Marsden's (1998) emphasis on the continued role of agriculture in shaping rural spaces holds true for Hawaiʻi's post-plantation landscape.

> Despite the decline in agricultural hegemony in many rural areas … we have to recognize that in terms of broader processes of restructuring in rural areas, and in terms of the consumption of rural resources, agricultural and broader land-based social and economic relations still have a significant hold on the shaping of regulations, and on *the processes by which rural areas are differentiating* (emphasis retained). (Marsden, 1998)

Given the disconnect between the economic and socio-cultural importance of agriculture in Hawaiʻi, this project explored the ideological and material role agriculture plays in the lives of Hawaiʻi Island's rural residents through the means by which stakeholders constructed and negotiated their visions for agriculture in contemporary rural Hawaiʻi. The extent to which Hawaiʻi's rural communities in the future are characterized by agricultural livelihoods and lifestyles, is dependent on a multiplicity of interacting factors, which are best understood through an in-depth examination of resident's motivations and their socio-economic realities as they participate in Hawaiʻi's transition to a diversified agricultural landscape, and also by understanding Hawaiʻi's political agrarian climate. While the re-creation of rural Hawaiʻi has in part been led by agricultural and land use policies and programs that promote diversified agriculture[2] as a new form of rural land use, the role of Hawaiʻi's producers cannot be overlooked in shaping the existing patterns of land use, rural economic activity, and the socio-cultural landscape of agriculture.

In Hawaiʻi, ideas on how to re-conceptualize and re-create rural spaces following the closure of the sugarcane industry have been at the forefront of the minds of policy makers and residents alike, as agricultural communities shut down almost overnight and large swaths of land were taken out of plantation production. The transition of Hawaiʻi's countryside from productivist plantation agriculture to a new rural space characterized by diversified agriculture was the predominant goal that arose from community-based planning initiatives at the State, County, and community levels. However, the creation of an industry, despite it being the goal or vision of the people, is being challenged by the evolving patterns of land tenure, land markets, the availability and interest of farmers in pursuing agricultural livelihoods, and the support systems in place to facilitate the development of the industry.

Consumptive uses of Hawaiʻi's countryside, such as the proliferation of quasi- and non-commercial farms (i.e., hobby farms, gentlemen farms), became increasingly apparent in Hawaiʻi following the collapse of the sugarcane industry and the increasing availability of land in rural areas. The influx of amenity migrants into former plantation communities coupled with economic diversification in the countryside has led to rapidly changing rural landscapes across East Hawaiʻi. The Hāmākua Coast in particular has become an attractive location for amenity

[2] Diversified agriculture in Hawaiʻi is understood as the production of fruits, vegetables, livestock, and specialty crops such as coffee, honey, and other value-added products.

migrants to purchase a first or second home; consequently residents' lifestyles and livelihoods have become more diverse. Real estate companies advertise 92-acre 'retreats' in Mililani, on the Island of Oʻahu, zoned agriculture, that can be used for "agriculture, gentlemen's farm, or sustainable living" (LoopNet, 2009). Another advertisement from American Dream Realty (2009) states, "Imagine your own gentleman's farm on the east side of the Big Island of Hawaiʻi! Tropical paradise and country living meet on these lush 5.5 acres of rolling pasture and woodland, complete with a 3-acre plateau on which to build your dream home." As the number of these developments increases the likelihood of re-conceptualizing the area as one defined by hundreds of small family farms has become more difficult, as many rural newcomers are not engaged in traditional agricultural production. While some amenity migrants pursue production of fruits, vegetables, and other specialty crops, others own what are referred to colloquially as 'fake farms' where they receive tax breaks for owning minimal livestock or planting a small orchard.

The issue of 'fake farms' was brought to the forefront in Hawaiʻi in 2003 when a $1 billion plan to build a luxury housing project on 1,550 acres on Hawaiʻi Island was halted by a judge who found that the project was largely an urban housing development on agricultural land and consequently in violation of state law; the decision was met with public scrutiny as it raised questions about the legal status of thousands of homes already build on Hawaiʻi's agricultural lands (Dayton, 2006). Concern over fake farms resurfaced in legislation two years later, in Act 183, concerning the designation of Important Agricultural Lands (IAL), and again in 2005 when Act 233 was enacted to provide incentives for landowners to designate land as IAL. According to the Hawaiʻi Department of Agriculture (2005), the majority of the market value for agricultural land is for "gentleman farmer estates, which are essentially large residential lots in agricultural areas"; therefore, the goal behind the designation of IAL is to provide tax incentives to commercial scale producers specifically, and is not meant for "gentlemen estates, hobbyists, and others who are not in agriculture as a profession with the intention to operate as a business on IAL."

While opinions on gentlemen and hobby farms surfaced in discussions with interviewees, the impact these developments have on Hawaiʻi's agricultural landscape and economy varied, and sometimes challenged commonly held conceptions about rural amenity migrants. Earl

Yamamoto, a planner for the State Department of Agriculture, stated that Hawaiʻi recognizes that while "some of these small farms in agricultural subdivisions are productive the overall track record state wide is poor," and that allowing agricultural subdivisions and estate-like homes to be developed without restrictions will "drive up land values exorbitantly … setting a precedent for (future) land use" (Aguiar, 2007). This was confirmed during field work when local farmers valued their property above the assessed value; this decision was made knowing the higher price could be obtained from amenity migrants. Unfortunately this practice prices out interested agricultural buyers who would not be able to generate sufficient revenue from farm sales to cover the mortgage. The City and County of Honolulu states that "under Honolulu zoning, any land zoned agriculture, even if in state [zone] urban, can only have farm dwellings, no single family dwellings, so even the prospect of 'gentlemen's estates' is speculative," (HDOA, 2005) however this does not preclude two common practices – first, the purchase of agricultural land by absentee landowners and others who may choose to not live on the land full-time, or second, the minimal engagement of homeowners in agriculture. Conversely, in conversations with an agricultural consultant for Hawaiʻi County it was forcefully suggested that the individuals moving to the Hāmākua Coast "are not gentlemen farmers, they are *actively trying to grow food* (emphasis retained)" (Consultant, pers. comm., 2008). Similarly, a farmer in the Hāmākua Agricultural Cooperative (HAC) felt that gentlemen farmers are not significant threats to farmers, but the economic difficulties associated with farming in Hawaiʻi are what make agricultural livelihoods difficult to sustain (HAC member, pers. comm., 2013).

To encourage the success of Hawaiʻi's transition to diversified agricultural production, the State and County have drawn on farmland preservation ideologies and tools to mitigate some of the changes taking place in Hawaiʻi's countryside, including zoning regulations, tax structures, and property easement and sale opportunities. However, these principles and practices are rooted in farmland preservation models that predominate on the U.S. mainland. They are the products of economic, social, and environmental histories that are markedly different from Hawaiʻi's agricultural past where large sugar and pineapple plantations dominated the landscape, rural life, and local economy for over a century; moreover, they may not take into consideration the unique trajectory of land development and ownership in Hawaiʻi. As a consequence of these varying histories, the politics of 'preservation' – of farmland and farm communities – *in Hawaiʻi*

attempts more to *create*, rather than *preserve* or *recreate*, a rural landscape of individual landed farmers.

Evidence of the creation of a new agricultural landscape is seen across Hawaiʻi Island. The evolution of land tenure on Hawaiʻi Island has consolidated a large amount of agricultural land in the hands of a few large landowners, whose mission statements speak to the importance of agriculture to their organizations and local economies. These landowners have worked to support agriculture through means that strive to both facilitate increased production and consumer participation in the local food economy. The State Department of Agriculture has encouraged increased consumption of locally-produced products, through 'Buy Local' campaigns and product branding programs that highlight Hawaiʻi-grown items (Leung and Loke, 2008). On the supply side, the State has worked to promote agriculture by providing tax breaks on agricultural land, developing agricultural parks and cooperatives, creating zoning regulations that identify important agricultural land, and offering low-interest loans to agricultural producers. Other major land-owning institutions, including the County of Hawaiʻi, Kamehameha Schools (KS), and Parker Ranch, also support diversified agricultural through land leasing programs, consumer awareness campaigns, and grants and other financial assistance initiatives for agricultural activities. Results from community visioning exercises, conducted following the collapse of the sugarcane industry on Hawaiʻi Island, are in line with the stated missions of the major landowners on the island: residents continue to feel that the strength and future of Hāmākua District, and Hawaiʻi Island in particular, lies in the preservation of its rural areas, and they continue to call for the increased investment of the State, County, Kamehameha Schools, and other private landowners in agricultural activities.

Despite the support for diversified agriculture from the State and other land-owning institutions and the desire to preserve rural livelihoods and lifestyles among residents, the development of Hawaiʻi's diversified agricultural economy remains a challenge. Due to the small size of Hawaiʻi's farms, the State, County and other land owning institutions have encouraged farmers to form collaborative relationships. In Hawaiʻi many farmers are forced to sell their produce at a price below the true cost of production, in order to compete with imported products. Consequently many seek to increase production, attempting to hit an economy of scale where the revenue earned covers production costs. However, in Hawaiʻi where the average size of most farms is less than 20 acres, achieving an economy of scale is extremely challenging, if possible.

Additionally, competition for quality land is high, further challenging the ability of small farmers to expand. Cooperatives are a way to help lower farmer's costs of production by sharing the burden of expensive capital investments (e.g., tractors, refrigeration, processing facilities). When conditions are such that collaboration can facilitate economic prosperity, farmers have come together to meet common goals through collective marketing, bulk purchasing, and shared processing and distribution. However, the success of many of Hawaiʻi's cooperatives and other collaborative relationships has been limited due to several factors – e.g., mismanagement, limited markets, and deteriorating equipment and infrastructure. In Hawaiʻi where the politics of farmland and farm community preservation is working to create a new landscape of farmers, and the trajectory of the global agro-food industry and Hawaiʻi's location within it renders farming a challenge, an important and unpopular question remains: to what extent is agriculture in Hawaiʻi a viable profession?

Community-Based Natural Resource Management

In response to the need to transition the State's former sugarcane lands into diversified agricultural production, state and local governments facilitated the establishment of collective, community-inspired agricultural projects. These 'solutions' involve, to varying degrees, community-based resource management (CBRM) strategies. The hope is that through the self-imposition of rules and restrictions on resource use, communities will be able to manage resources successfully and safeguard them for future generations (Feeny et al., 1990). Ostrum's (1990) eight principles for governing common pool resources outline the steps through which such an achievement is possible, including the need to match rules governing resource use to the local needs and conditions; ensuring that those affected by the rules can participate in modifying them; developing a community-based monitoring system; and providing a low cost, accessible means for dispute resolution.

Community-based resource management strategies are not devoid of conflict. Complex social and economic realities within communities oftentimes complicate well intentioned community approaches. The potential benefits of CBRM are balanced by a suite of risks and constraints to local level management including: 1) defining the "community"; 2) soliciting community participation; 3) monitoring and sanctioning resource use; 4) limited financial resources; 5) lack of sufficient authority; and 6) cooptation by segments of the community (Agrawal and Gibson, 1999; Brosius et

al., 1998; Li, 2002). Ultimately, community-based endeavors should empower local people to negotiate their collective interests and provide a viable economic opportunity for its members. Agrawal and Gibson (1999) suggest that successful CBRM is couched within policies that consider three dimensions of community: the multiple actors and interests of communities; the processes through which actors interrelate; and the institutional arrangements that structure those relationships. However, for CBRM strategies to employ these dimensions of community, significant guidance and leadership must be brought to bear on the project from outside and/or within the community. When sufficient leadership mechanisms and mediation processes are not built into a CBRM strategy at the start, when disagreements occur they can snowball, potentially leading to irreconcilable differences within the community and the mismanagement of resources.

The post-plantation landscape of Hawaiʻi Island offers several case studies in observing how communities organize – or are organized by landowners – to facilitate shared resource use. As large landowners became responsible for the management of former sugarcane land, they recognized the need to involve communities in leasing land and making these lands productive. This has involved the formation of different types of agricultural cooperatives to co-manage land and agricultural facilities. While the state and county government can play a role in the facilitation, mediation, and oversight of CBRM initiatives, their involvement may enhance or impede local efforts in resource management. In the field site, CBRM approaches were largely developed by government entities and overlaid on communities, for the benefit of displace sugar workers and area farmers. While community members were supportive of the CBRM strategies, they were not born from the community itself. Challenges arose in the field site as local 'communities' lacked homogenous social structures and shared norms (Agrawal and Gibson, 1999), largely the result of a complex socio-cultural landscape born from the area's history in plantation agriculture. Difficulties also surfaced due to the conflicting interests of community members and the lack of institutions to effectively reconcile disagreements.

Researchers within the field diverse economies (Gibson-Graham, 2005; Gibson-Graham, 2008; Healy, 2009) and community-based natural resource management (St Martin, 2005; Emery and Pierce, 2005; O'Conner, 1988; Lake, 2002; Singleton, 2000) have begun to examine alternative economic activities and means of resource management, ownership, and use (e.g., civil society initiatives, cooperative farming, local trading systems, resource gathering) in an

effort to understand the credibility of these movements and their potential for creating real, lasting, innovative change that can begin to advance a 'discourse of economic difference' (Healy, 2009). The evolution of the countryside has forced scholars of rural sociology to explore diverse drivers of societal change that combine traditional agrarian-based theories with new modes of thought on rural change. While commodity-scale agriculture has waned in Hawaiʻi due to its inability to compete with commodity production overseas, we have seen a resurgence in small farms and a rising interest in cooperative, community-based institutions and collaborative processes that are working to support the state's new diversified agricultural industry.

Since 2000 there has been an increasing trend nationwide in the number of small farms, representing opportunities in small-holder agriculture and lifestyle choices of rural residents. For many small farmers, agricultural incomes are supplemented by off-farm employment, in some cases subsidizing their agricultural endeavors. Many of Hawaiʻi's new farmers are actively involved in new rural agrarian movements in organic production, permaculture, agroecological farming, Native Hawaiian crop production, Korean Natural Farming, and others, which attempt to recouple commercial agriculture with ecological practices, natural resource sustainability, local self-sufficiency, and viable employment and livelihoods. Some movements have enjoyed more success than others; organic agricultural in particular has made inroads in Hawaiʻi with the emergence of local and externally-based natural food stores, and community-based cooperatives have found ways to share the responsibility for resource management to increase their economic viability.

According to McMichael (1997) contemporary agrarian economies are best understood through a process of reevaluation that considers local and strategic considerations – community-based interests and preferences – alongside global influences. Attention is now being paid to the future of rural areas, and the concerns of rural society and those engaged in the development of agricultural land. In Hawaiʻi this has meant increased attention to the role of community-based groups and cooperatives in both collectively contributing to increased food production, and sharing access to resources for production and processing. While overall the success of CBRM in Hawaiʻi is varied, effort is continuously placed on improving the viability of agrarian-oriented community initiatives; increased attention on their shortcomings could further the success of future endeavors. McMichael (1997) suggests that the central question is now – "how to protect

and restore local and national food systems from the forces of globalization", a question that must be answered in part through local level investigations into the unique practices of agriculture.

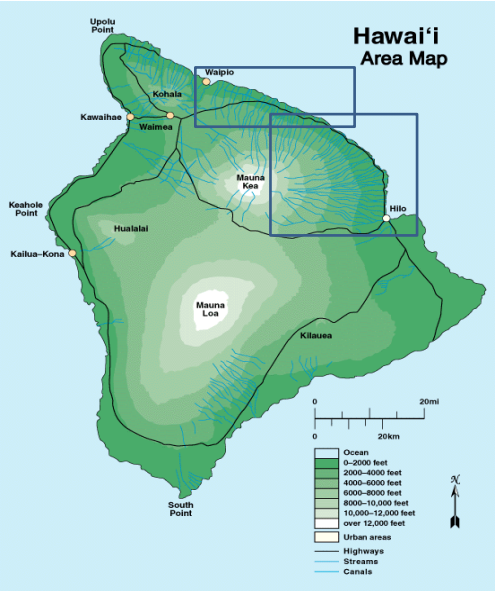
The Field Site

Field work for this research was conducted on Hawaiʻi Island along a corridor between the town of Waimea in South Kohala District, heading east and south along the Hāmākua Coast, and extending into North Hilo District (see Figure 1.1). These communities are located along what is called the 'Hāmākua Heritage Coast', a coastline formerly dominated by sugarcane companies and heralded locally as the 'Bread basket of the State'. Hawaiʻi Island, under the jurisdiction of the County of Hawaiʻi, has a total land area of approximately 2,580,000 acres, which includes roughly 1,185,000 (48%) acres that fall into the State Land Use Agricultural District (Melrose and Delparte, 2012). The majority of the island's agricultural lands are located in Hāmākua District, the primary location of the ethnographic research, encompassing 400,140 acres with 163,193 acres (40.8%) zoned for agriculture.

Across the study site the climate and landscape varies markedly. The small town of Waimea is known for its rich soils and an adequate climate for truck crops; additionally, the town's close proximity to Kawaihae Harbor on the island's west coast facilitates the transportation and distribution of agricultural products around the island and state-wide. As you drive east from Waimea towards Hilo, the road travels along the volcanic slopes of Mauna Kea, the state's highest geographic landmark at 13,796 feet. Between the communities of Waimea and Honokaʻa, the landscape is characterized primarily by pasture land for grazing cattle, largely owned by Parker Ranch and individual private owners, with some forestry leases located closer to Honokaʻa on land owned by Kamehameha Schools. Waipio Valley, located 10 miles north of the town of Honokaʻa, is well known for its historic taro cultivation, a tradition that is perpetuated today by several families living and working on land leased from Bishop Museum, based on the island of Oʻahu. As you approach the town of Honokaʻa and then head southward through the former sugarcane communities of Paʻauilo and Laupāhoehoe the land is characterized by light rural development, including plantation camps, small leasehold and

privately owned farms, forestry leases through Kamehameha Schools, and large gentlemen estates. The soils along this corridor are a product of weathered volcanic ash with high levels of organic matter, particularly in areas not used for sugarcane production. East Hawaiʻi is characterized by ‘having soil’, as compared to West Hawaiʻi where volcanic lava flows are younger and soil has not had a chance to develop. Rainfall levels vary along the corridor, from 30 inches per year average in Waimea, to 130 inches per year in Hilo. Irrigation has facilitated agricultural production in the field area, with elaborate ditch systems established by the sugarcane companies and kept in working condition by the State and County of Hawaiʻi.

Figure 1.1. Map of Hawaiʻi Island, including the research corridor between Waimea and North Hilo along the Hāmākua Coast



Map credit: Bob Cunningham, School of Ocean and Earth Science and Technology, University of Hawaiʻi at Mānoa (Retrieved on 24 June 2012 from http://satftp.soest.Hawaiʻi.edu/space/Hawaiʻi/maps/maps.html). Boxes indicate field area.

Hawaiʻi’s agricultural industry faces tremendous competition both internally and externally. Internally agricultural uses compete with other land use development interests, including demands for residential housing and commercial business development. As many of the area’s former sugarcane workers have migrated to the larger communities of Hilo and

Kailua-Kona for employment opportunities, land and property in the field area has opened up for local residents and in-migrants. As Hawaiʻi, and Hawaiʻi Island in particular, is increasingly touted as an ideal place to live (Pacific Business News 2009; National Geographic, 2009), the demand for first and second homes in the field area has climbed, alongside property values. The Districts of South Kohala and Hāmākua have become attractive locations to purchase a first or second home, and consequently Hāmākua resident's lifestyles and livelihoods have become more diverse. Externally, agricultural businesses in Hawaiʻi compete with produce being shipped in from U.S. mainland and international markets, where costs of production are lower and economies of scale more efficient. With a growing market demand for locally grown produce in Hawaiʻi, there are increased opportunities for island producers; however significant challenges impede the success of local growers and the development of a thriving industry, including labor affordability and availability, the cost of inputs, access to land, and the capabilities of producers.

Establishing a Framework: Methods

A range of primary and secondary data collection methods were used for this research. Initial methods included participant observation of community meetings and informal discussions with local farmers, livestock owners, and rural residents to better understand the material and ideological role that agriculture plays in the lives of East Hawaiʻi residents. Informal discussions are locally called 'talk story', a means by which family and friends gather together to share stories, meet new people, and discuss matters of common concern. Concurrently, semi-structured interviews provided further insight into the motivations and values of individuals engaged in agriculture. And lastly, professional relationships with farmers, ranchers, and value-added business owners through employment at a local non-profit provided a deeper perspective of the realities facing agricultural producers and the challenges they faced in launching and growing their businesses. Over the six years I spent living, volunteering, and working in the field area I was fortunate to engage in numerous semi-formal and informal interviews, discussion, and talk story sessions with rural residents, farmers and ranchers, agricultural professionals, and public officials. These conversations took place in a variety of settings, including resident's homes, farmer's fields, processing facilities, professional offices,

inter-island trips and car drives, coffee shops, organizational meetings, seed exchanges, community agricultural presentations, and community gatherings.

My initial interest in agriculture on Hawaiʻi Island led to my spending two weeks a year on the island between 2006 and 2009, shearing sheep for agricultural producers and other rural residents, and talking story with individuals about the trajectories of farming and the new role of agriculture in post-plantation Hawaiʻi. When I relocated to Hawaiʻi Island's Hāmākua District in 2009 the County of Hawaiʻi's Planning Department was soliciting volunteers to facilitate community meetings to gather input for an updated Hāmākua Community Development Plan (CDP). As a CDP volunteer I facilitated approximately 10 small group (8-20 people) meetings between the communities of Laupāhoehoe and Kapulena, learning about resident's values and visions for the island's rural Hāmākua District. Following on these meetings, I conducted semi-structured interviews with 30 individuals to further document resident's agricultural practices, and agrarian values and visions for a post-plantation rural landscape in East Hawaiʻi. Initial interviews were conducted with CDP participants who were interested in speaking further about their values and visions. Subsequent interviewees were selected through snowball sampling; by requesting the names of other residents involved in agriculture or agrarian projects. Through my involvement in the Hāmākua CDP and the subsequent interviews I realized a significant disconnect between the level and extent of agriculture being practiced on the land, and the deep values and visions residents held for an agrarian-based post-plantation landscape in the field area. The extent of this disconnect influenced the course of my research, leading to a focus on the role of land-owning institutions, and the opportunities and challenges experienced by agricultural producers.

The majority of the research for this project was conducted over two years, between 2009 and 2011, after my involvement in the CDP process. During this time I closely followed the evolution of two land-based rural projects focused on agricultural development – the Hāmākua Agricultural Cooperative and the Kapulena Agricultural Park. In addition, I participated in state and county community-based planning initiatives emphasizing agricultural workforce development and rural community preservation. I spent five years (2012-2016) working for The Kohala Center, a local non-profit organization based in Waimea, on issues relating to food self-sufficiency. In this capacity I worked as an Agriculture Business Development Specialist,

assisting farmers and food producers in acquiring capital to start or expand their operations. For over one year I worked and lived on a farm developed by amenity migrants, where the owners processed wool into clothing and sold lamb, beef, and eggs at a local farmer's market; between 2009 and 2013 I served as a sheep shearer for this farm and others in the Hāmākua area. And lastly, I worked as a farm laborer for approximately 2 years on a taro farm in Waipio Valley, a diversified vegetable farm in Honokaʻa, and a high-end honey company outside of Honokaʻa.

The decision to shift my focus to follow two State and County-based agricultural projects, versus the role of amenity migrants, provided for a better understand of the motivations behind the rural discourse as articulated by Hawaiʻi's land-owing institutions alongside the local level challenges to viable agricultural production. The two agricultural projects were 1) the State-initiated Hāmākua Agricultural Cooperative (HAC or the 'Coop'), formerly called the Hāmākua North Hilo Agricultural Coop, and 2) the County-sponsored Kapulena Agricultural Park (KAP or the 'Park'). The dominant rural discourse expressed by Hawaiʻi's large land-owning institutions, commonly provided as justification for agrarian-based projects, emphasizes the importance of developing Hawaiʻi's diversified agricultural industry to increase local food self-sufficiency and provide economic opportunities in rural communities. While that same discourse emanates from Hawaiʻi's rural communities themselves, it is intertwined with expressions of frustration as farmers struggle to make a viable living in agriculture. Hawaiʻi's rural discourse appears to mimic the popular agrarian discourse articulated by food and farming movements on the U.S. mainland (Barber, 2015; Belasco, 2006; Guthman, 2004; Patel, 2012; Pollan, 2007; Schlosser, 2012; Thompson, 2015). These movements highlight the need to reexamine our food choices in order to improve both the health of our bodies and our local ecosystems; discourse underpinning these movements is based on the assumptions that corporations influence how we eat and think about food, and that corporate agriculture has inherent flaws that are undermining local agrarian systems. This research examines local agrarian discourse as expressed by the state and county in planning meetings and documents, and juxtaposes it with conversations taking place at the local level by those practicing agriculture. An examination of popular discourse, as defined by Dryzek (1997) as a "shared way of apprehending the world," allows researchers to uncover the "assumptions, judgments, and contentions" that underlie human values. Government and community planning documents that were drawn on include the County's Agricultural

Development Plan (COH, 1992; COH, 2012), the County's General Plan (COH, 2005), the County-sponsored Food Self-Sufficiency Baseline Study (Melrose and Delparte, 2012), the Hāmākua Agricultural Plan (COH, 2006), and the Plan for the Hilo Hāmākua Coast (Kramer, 2000). Additionally, the summary report from the 2013 State-sponsored workforce development meetings provides an important perspective on agricultural opportunities and challenges from farmers and ranchers in attendance; I was able to attend two of the five statewide sessions, both on Hawaiʻi Island (Hawaiʻi Department of Labor, 2013). Discourse from these documents was compared with insight gained through the case studies and field interviews. The juxtaposition of this information allowed for agriculture's opportunities and barriers to be compared over time, and highlighted areas of similarity and disconnect between the discourse emanating from government entities and individuals engaged in agriculture at the local level.

I initially approached the HAC and asked to sit in on board meetings to observe the Coop through my role as a graduate student to better understand the organization. My involvement occurred alongside a lawsuit the organization was facing by a member farmer and a mediation process they initiated with the Washington-based Cooperative Development organization, Northwest Cooperative Development Center (NWCDC). Early on in the field work process, HAC and the NWCDC asked that I assist as an interviewer in an Appreciative Inquiry (AI) process, designed to rebuild member trust in the Coop. This exercise allowed me to conduct AI-based structured interviews with member farmers and introduce myself to the broader membership. During and after my five month role as an interviewer for the AI process, I attended Coop board meetings for over one year, assisted members with organizational paperwork and business plan development, helped organize formal meetings and farmer gatherings, established a farmer's market booth for the Coop in Waimea, and worked as a part-time onion and potato farmer on a five-acre parcel of Coop land north of Honokaʻa.

In 2009 the County of Hawaiʻi proposed the Kapulena Agricultural Park (KAP) to the Hāmākua Community and requested community involvement in the Park's development. The process involved monthly community meetings to generate buy-in and solicit input on Park design. After attending a couple of meetings as an anonymous community observer, I introduced myself to the organizers and informed them that I was a graduate student researching the role of agriculture in post-plantation Hāmākua District. Following this introduction I was asked to serve

as a note taker, documenting the community meetings leading up to KAP's establishment. In this capacity I attended monthly meetings for one year, and contributed to KAP's working group on Education. My involvement with the Park led to a working relationship with the chair of the Education group, a local taro farmer and poi processor, and subsequent work on agricultural marketing (Elevitch, et al., 2012) and farmer training programs. My involvement in these two state and county agricultural projects supplemented the information gathered from my involvement in the community visioning exercises, and gave me a better understanding of the disconnect between agrarian discourse and agricultural realities in East Hawaiʻi, and the viability of agricultural livelihoods in Hawaiʻi.

The Fieldwork Experience

Ethnographic research presents various opportunities and constraints which need to be articulated. My training in ethnographic research prepared me to be cognizant as to how I was perceived by the community, and be aware of how I perceived people, their ideas, and situations based on my socio-cultural upbringing, experiences, and biases. It was impossible to conduct fieldwork and live in the communities of Honokaʻa and Waimea without becoming involved in local community groups and the daily lives of individuals. However by being immersed in the community on this level I was able to develop trust between myself and the community that allowed for greater collaboration and ultimately a more in-depth understanding of the role agriculture and the importance of agrarian livelihoods and lifestyles among East Hawaiʻi's residents.

While Hawaiʻi is part of the United States, significant cultural differences exist between Hawaiʻi and other U.S. mainland states as a result of Hawaiʻi's unique plantation history. For example, individuals born in Hawaiʻi of mixed ancestry, referred to as 'locals' in Hawaiʻi, can be modest and shy in some social or professional situations such as academic or community-based classes, community meetings, or in talk-story gatherings where strangers and/or non-locals are present. As a non-local Caucasian woman I was mindful that my socio-cultural upbringing encouraged me to be more assertive and outgoing in social and professional situations, and that this allowed for both increased access to people and information in some situations, but was met

with apprehension in others. Furthermore, in the role of a graduate student, I was afforded more space by interviewees to ask questions and probe responses, in both one-on-one and community meeting settings, a fact that I appreciated throughout the process and attribute to the interviewee's acknowledgement of the importance of higher education and the need to better understand the challenges and opportunities facing Hawaiʻi's agricultural industry.

Between 2012 and 2015, coinciding with my enrollment at the University of Hawaiʻi and my doctorate research, I was employed full time as an Agricultural Business Specialist at The Kohala Center (TKC), a local non-profit in the nearby community of Waimea. In this role I assisted agriculture and food enterprises statewide in business development. This position both influenced my research and changed how I was perceived in the community. Over the seven plus years I spent in the field area it became difficult as a researcher to separate information I obtained on Hawaiʻi's changing agricultural industry through my professional relationships with agricultural businesses from the understanding I gained through my time doing field work. Between 2012 and 2016 my job was consuming, personally and professionally, leaving me little time to spend on my dissertation; consequently in my relationships with clients I rarely mentioned that I was currently enrolled as a graduate student examining agriculture's role in the island's post-plantation landscape. When I did mention my graduate work to clients they oftentimes wanted to hear my opinion on the viability of diversified agriculture, and they were more inclined to share their philosophical opinions and personal experiences surrounding agriculture. My position at the non-profit opened several doors to me that may not have opened otherwise, including many organizational and community meetings and events focused on agriculture in Hawaiʻi, and the invitation to attend the State Department of Labor's Workforce Development meetings which provided insight on labor-related challenges faced by Hawaiʻi's farmers. As a result of my dual role in the field site, it became challenging for me to tease apart understandings obtained via field work and those insights gained through personal and professional relationships. I believe that my familiarity with and regard for Hawaiʻi's agricultural industry was deepened due to my personal and professional connections in the community, however I feel that the conclusions I have drawn are largely the result of my time spent observing the Hāmākua Agricultural Cooperative and Kapulena Agricultural Park processes. In this dissertation, all of the individual quotations and summary notes from Coop and KAP

meetings were obtained through field work scenarios, where individuals were aware of my position as a doctorate student. However biases developed through my professional work with clients undoubtedly influenced my perceptions of the industry and of the challenges faced by new and seasoned farmers.

I believe that because of my professional role at The Kohala Center, farmers and other food-related business owners and organizational leaders viewed me as having more skin in the game. I was perceived, perhaps, as more dedicated to the outcome of the industry and having a vested interest in community development and the health of rural businesses. Perhaps I was no longer perceived as a *haole* (Caucasian or newcomer) who was coming into a community to collect stories and then leave – a reality for many graduate students doing field work outside of their home communities, but instead as someone connecting with individuals in a more intimate manner. By summer 2016, when this dissertation was being finalized, my roots in the community had solidified; I had established a residence in the community of Honokaʻa, started a family, and became the Director of Food and Agriculture Initiatives at The Kohala Center.

While at The Kohala Center I assisted several local agricultural businesses and organizations with grant writing and financial development strategies, including individuals and groups in my field site. I worked with HAC to acquire funding to develop a wash-pack facility for Coop members in Haina, a former plantation camp community in Honokaʻa, and assisted the Coop in writing grants for professional development and advertising. In my role at TKC I participated in the development of the Beginning Farmer-Rancher Development Program, funded by the United States Department of Agriculture and the County of Hawaiʻi, designed in part to help potential lessees qualify for both Coop and KAP agricultural lands, and provide holistic education on farming and agricultural business development. Additionally, work-related travel to meetings and farms on the islands of Oʻahu, Maui, Molokaʻi, and Kauaʻi provided the opportunity to speak with a range of people from outside the study region, and to compare and contrast the agricultural practices and discourses operating across the state.

Synopsis of Chapters

Chapter 2 will explore the evolution of land and agriculture in Hawaiʻi, charting the rural transitions in Hawaiʻi from the role of Native Hawaiians on the land, through plantation agriculture, and ultimately to the diversified agricultural landscape of today. The evolution of diversified agriculture in Hawaiʻi and the study area will be discussed, alongside the difficulties facing agricultural producers as identified in local policy and planning initiatives. Hawaiʻi's agrarian position within the popular food and farming movement will be contextualized, laying the groundwork for understanding the challenges faced by Hawaiʻi's farmers in subsequent chapters.

Chapters 3 explores two case studies in-depth, including the State-initiated land leasing cooperative (Hāmākua Agricultural Cooperative) and the start-up County agricultural park in Kapulena (Kapulena Agricultural Park) along the Hāmākua Coast. The evolution of the projects is discussed, including the challenges they faced throughout their implementation process, and the anticipated and unexpected outcomes they generated. Chapters 3 and 4 combine an assessment of institutional approaches towards agriculture with a place-based study of the realities of practicing agriculture in East Hawaiʻi.

Despite the important roles of discourse and institutional backing in garnering support for and participation in Hawaiʻi's agricultural economy, Chapter 4 considers the significant challenges that remain in building viable agricultural livelihoods. This chapter revisits the challenges surrounding land, labor, capital, and knowledge, including strategies and coping mechanisms farmers employ to overcome them. This chapter concludes with a discussion of three inter-related lessons that were drawn from the research. First, the intended and unintended consequences of agricultural initiatives provide insight into the management of community-based agricultural projects and, more broadly, the development of a viable agricultural industry. Secondly, the professionalization of agriculture might help facilitate the reproduction of industry. And lastly, there is a need to embrace the multiplicity of agricultural livelihoods and lifestyles within our current conceptualization of agriculture to allow for the growth of new social and economic movements in Hawaiʻi's rural areas. Chapter 5 concludes the exploration of diversified agriculture in East Hawaiʻi and presents observations and questions to consider when attempting to understand and plan for the future of land use and agricultural development in Hawaiʻi.

Conclusion

Hawaiʻi's process of deagrarianization has not followed the same pattern as other rural areas on the U.S. mainland due to the unique political economy of land and agriculture in the state. Witnesses of rural change on the U.S. mainland and in Europe, particularly in areas with high rural amenity value, have seen landscapes transition from productive, to post-productive, to multifunctional, with consumptive uses of the countryside becoming more prominent and agriculture becoming less integral to the economies of rural areas and to the livelihoods and lifestyles of rural people. In many formerly productive rural areas, including in Hawaiʻi, we see what Li (2007) describes as a "tension between agriculture's retreat and its enduring importance." On the U.S. mainland, farmland preservation tools and movements to save family farms have worked to protect rural land use for food and farming. Similar efforts are underway in Hawaiʻi, as the state, counties, and large landowning institutions work to re-make Hawaiʻi's post-sugar landscapes. In Hawaiʻi this tension between agriculture's passing away and it's continued ideological importance manifests in the discourse of large landowners and their initiatives to encourage farmers to lease land and pursue agricultural livelihoods.

Based on the evolution of the literature on rural change discussed above, this chapter concludes by advocating for a more holistic and flexible understanding of rural areas in Hawaiʻi, an understanding grounded more firmly around new forms of agrarian development that considers the role of multiple actors and production styles in shaping rural spaces. The process of re-creating and re-conceptualizing post-plantation agriculture in Hawaiʻi might also benefit from re-defining agriculture, by moving beyond traditional definitions to allow for more diverse configurations of rural land and resource use; perhaps rural communities could be viewed as productivist even when families' secondary income is derived from agricultural production, or when households engage in agriculture primarily for hobby or subsistence reasons. In Indonesia Li (2007) witnessed a "changing, not declining, significance of rural land…as a productive asset, central to livelihoods and territory, loaded with affective significance"; in Hawaiʻi, we see a changing, not declining, significance of agriculture – a practice imbued with meaning, re-populating the landscape in new ways, and being engaged in by a diverse range of individuals.

CHAPTER 2. LAND AND AGRICULTURE IN HAWAIʻI: A HISTORICAL AND GEOGRAPHICAL REVIEW

Introduction

> [I]t was agreed that an agriculture-based economy is the basis of a rural lifestyle and an essential part of the character of the Hāmākua community that must be maintained. The participants envisioned 'a thousand points of green,' representing the desire to have 1,000 successful small farms and ranches to take the place of one monolithic crop and employer. –Hawaiʻi Island resident, in the *Hāmākua Agricultural Plan* (COH, 2006)

Hawaiʻi's economic diversification and an influx of amenity migrants following the collapse of the plantation economy in the late twentieth century have led to rapidly changing rural landscapes. No longer characterized by commercial agricultural production, rural Hawaiʻi is being shaped by a myriad of values and visions that are influenced by culture, economic interests, and other driving forces. Hawaiʻi's position within a global agro-food system played a role in shifting Hawaiʻi's rural areas from plantation to diversified agriculture, as sugar and pineapple production moved overseas to access more affordable land and labor markets. This industrial shift has resulted in marked changes in rural land use, agricultural capital and labor needs, and the reinvention of rural society across the state.

This chapter reviews the history of land and agriculture in Hawaiʻi, and specifically in East Hawaiʻi, Hawaiʻi Island, in an effort to better understand the history behind the contemporary rural landscape and the challenges of creating and sustaining a new agricultural economy in Hawaiʻi. The contemporary history of rural land use and agriculture in East Hawaiʻi is a product of the region's linkages with global land markets and agro-food networks. In the following sections, the evolution of Hawaiʻi's rural areas will be explored, connecting past and current patterns of land use with external food and land markets to help set the stage for understanding the contemporary agrarian landscape.

Native Planters

> The planter and his life furnish us with the key to his culture. –E.S. Craighill Handy (In Handy et. al., 1991)

In the 1800s, when Westerners began to arrive in Hawaiʻi in significant numbers they found that the Native Hawaiians had rich agricultural practices and diverse fishing methods, and consequently utilized the landscape from the sea (*makai*) to the mountains (*mauka*). At the water's edge Hawaiians caught fish by throwing net, trapping, or raising them in fish ponds, and on land they cultivated a wide variety of plants for food, fiber, and construction. It is generally believed that various plants and animals arrived in Hawaiʻi from Polynesia at different times associated with unique voyages by different tribes (Handy et. al., 1991, 1991). The Hawaiian horticultural complex – referred to by some as the 'canoe plants', because they were likely transported to Hawaiʻi in large voyaging canoes – include taro (*kalo*), sweet potato (*ʻuala*), yam (*uhi*), banana (*maiʻa*), sugarcane (*kō*), breadfruit (*ʻulu*), coconut (*niu*), paper mulberry (*wauke*), olonā, ʻawa, gourd (*ipu*), ti (*kī*), arrowroot (*pia*), turmeric (*ʻōlena*), and bamboo (*ʻohe*) (Handy et. al., 1991). While Hawaiians cultivated these plants using primitive tools – only the digging stick (*ʻōʻō* or *ʻōʻō* bar) and their hands and feet – their gardening practices were advanced due to their use of several plant varieties, hillside terracing, irrigation using ditches diverting mauka streams, mulching and green manure systems, and plant selection based upon a location's environmental suitability (Handy et. al., 1991; Palmer et al., 2009). The agricultural practices of Native Hawaiians have been called by some scholars, 'an advanced art of gardening' due to the absence of the use of domesticated animals or mechanized equipment to cultivate fields, and the absence of food storage practices (Handy et. al., 1991).

> The operations of the Hawaiian planter involved an intimate firsthand relationship to the plants and to the soil and water comparable to that of a modern farmer or vegetable gardener. Compared with gardening, the operations of a farmer may be said to be 'once removed' from plants, soil, and water. –E.S. Craighill Handy and Elizabeth Green Handy (In Handy et. al., 1991)

To ʻ, Handy (Handy et. al., 1991) believed two aspects of life are particularly fundamental: (1) breeding and interpersonal relationships; and (2) feeding and relationship to earth, environment, and natural resources. "In planting and fishing, and in having offspring and family relationship," Handy et. al. (1991) note, "we observe the formative processes which produce the mind and temperament and their products, which in turn are the externals of culture." So while agriculture was not practiced commercially in Hawaiʻi by Native Hawaiians as we understand it today, a

highly developed system of cultivation did exist; these practices remain foundational to Hawaiian culture and instrumental in understanding their relationships with the land (*ʻāina*), the environment, and each other.

The land tenure system in Hawaiʻi prior to contact with westerners was an intricate and interdependent system, consisting of a hierarchical relationship between the *ʻāina* (land), the *makaʻāinana* (commoners), the *aliʻi (chiefs)*, the *mōʻī* (*aliʻi nui*, great chief), and their gods (Van Dyke, 2008; Handy et. al., 1991). Land was essentially entrusted to *mōʻī* by Kane and Lono, the gods of nature; *mōʻī* then partitioned land for utilization and tax purposes to the *aliʻi*, who in turn subdivided their portions for lesser chiefs, dependents, and supervising agents *(konohiki)* (Handy et. al., 1991). Lastly, land was provided to commoners who cultivated gardens for themselves and their families, in addition to providing a share of their harvest to the chiefs who oversaw the land. Under this system, land was neither owned nor under permanent tenure, and commoners had the right to abandon the land and move into neighboring territories if desired.

> This impermanency [in land tenure], however, rarely affected the planter, for the tenants who faithfully cultivated the acreage allotted to them were usually secure in their occupancy. It was wholly to the advantage of the aliʻi landlord and his konohiki (land supervisor) to maintain this permanent bond between planter families and their land. –E.S. Craighill Handy and Elizabeth Green Handy (In Handy et. al., 1991)

According to Hawaiian culture, land under this system was considered an elder sibling and therefore not allowed to be owned or traded. *Aliʻi* and *Aliʻi Nui* acknowledged their *kuleana* (rights and responsibilities) in caring for the land, and consequently assisted the people in proper management of the *ʻāina*, through their role as trustee (Handy et. al., 1991; Van Dyke, 2008). The concept, *mālama ʻāina* (caring for the land), was practiced actively by the *makaʻāinana*, who actively cared for the land's natural resources, including the soil, water, plants, forests, and wildlife that contributed to the continuation of Hawaiian's physical and spiritual way of life (Van Dyke, 2008). The essential nature of Hawaiian society prior to contact was "collective and cooperative through the *ʻohana* structure (Van Dyke, 2008)," a system that facilitated the social hierarchy on the land as well as the people's ability to carry out land-based practices such as taro cultivation through cooperatively built and maintained water systems and other activities (Malo, 1898).

The Hawaiian land tenure system described in brief above came under threat with the arrival of Westerners in the islands, who introduced the concept of land ownership to the Hawaiian people. The transformation of land ownership in Hawaiʻi and the conception of land in general, from traditional communal-style tenure to private land ownership, have been explored by several scholars (Handy et. al., 1991; Kameʻeleihiwa, 1992; Van Dyke, 2008). The most significant event that resulted from this transformation was the 1848 *Māhele*, the legal mechanism by which the model of private ownership of *ʻāina* replaced traditional Hawaiian land tenure (Kameʻeleihiwa, 1992). Kameʻeleihiwa (1992) notes that the *Māhele* signified the beginning of the loss of Hawaiian sovereignty, as Westerners subsequently sought economic and political control of the island nation, after gaining the right to own and sell land. Westerners experience and knowledge of capitalism gave them an advantage over Hawaiians who were new to the system (Kameʻeleihiwa, 1992). Forty-five years after the *Māhele*, in 1893, the Hawaiian government was overthrown by the United States and five years later Hawaiʻi became an incorporated territory of the United States. With the *Māhele*, the *ʻāina* became alienated as it was incorporated into a 'money economy', as Kameʻeleihiwa (1992) describes:

> Foreigners who wished to buy ʻāina did so with astonishing speed. American and European merchants, who constituted the bulk of the foreign population in Hawaiʻi at the time, saw in the Māhele the opportunity to acquire that one premise essential to capitalism, the private ownership of ʻāina. (Kameʻeleihiwa, 1992)

The new land tenure system paved the way for the ownership and investment in land by Westerners interested in establishing businesses in Hawaiʻi, specifically sugarcane enterprises, and by 1856 there were seven plantations operating in the islands (Dorrance, 2000).
It is against this much abbreviated backdrop of Native Hawaiian history, of their relationship to the land and the transformations of land ownership following Western contact that we must begin to understand the modern landscape that is Hawaiʻi today.

Plantations

> Sugarcane helped to make modern Hawaiʻi. (Dorrance, 2000)
>
> I've been sitting in the parking lot, and before I was leaving I just wanted to make sure I took a picture, and just to look at it, look at the people that are involved,

> something that has been part of your family and part of the island for so many years. This is history. That is what's sad. –Wife of a sugar worker at Hawaiʻi's last sugar plantation, Hawaiian Commercial & Sugar Company (In HNN, 2016)

Hawaiʻi's rural landscape quickly became dominated by plantation agriculture following the arrival of Westerners in the 1800s and the 1848 *Māhele* which facilitated land ownership by foreigners. This section will briefly describe the evolution and importance of sugarcane production in Hawaiʻi to highlight the dominance of the industry on the landscape and in Hawaiʻi's rural communities such that the effects of the transition out of sugar, and the challenges faced today by Hawaiʻi's diversified agricultural industry, can be more completely understood. A more thorough consideration of Hawaiʻi's sugarcane industry is provided by several authors that trace the rise and decline of the industry and the impacts it had on Hawaiʻi's communities and ecology (Dorrance, 2000; MacLannen, 2014).

While sugarcane was already grown by Native Hawaiians prior to Western contact, the technology brought by Westerners for sugarcane cultivation, harvesting, and processing facilitated the development of a competitive commercial industry in the islands. The first sugarcane plantation in the Hawaiian Islands was started at Koloa, Kauaʻi, in 1835, yielding two tons of raw sugar at the first harvest in 1837 valuing two hundred dollars (HARC, 2016). Initially the growth of the industry was challenged by labor shortages, water availability, and sugarcane transportation both on island and to external markets. As the Hawaiian population began to decrease following Western contact (Table 2.1) – due to the introduction of European and Western diseases – the plantation industry turned to the importation of contract workers. Labor importation – a strategy employed by sugarcane producers in Texas, Louisiana, Florida (Kennedy and DeBuys, 2013; Arnesen, 2007) – was instrumental as the dwindling population of Native Hawaiians was largely not interested in working in the sugarcane fields (Dorrance, 2000). The ethnic mix seen today in Hawaiʻi is the result of waves of immigrants coming to Hawaiʻi from Europe, Asia, and the Americas to be employed in Hawaiʻi's growing industry. Francis S. Morgan (Dorrance, 2000), operator of the Hāmākua Sugar Mill on Hawaiʻi Island, remembers:

> Labor was a continuing problem. In the mid-nineteenth century the Hawaiians were dying off, and it took years of experimentation before 1876 until a steady and reliable work force was developed by importing Chinese, Japanese,

Portuguese, Korean, and Filipino workers. –Francis S. Morgan (In Dorrance, 2000)

Table 2.1. Decline in the Hawaiian Population 1778-1896 (Kameʻeleihiwa, 1992)

Year	Hawaiian Population
1778	800,000
1823	134,925
1832	124,449
1836	107,954
1849	87,063
1850	84,165
1853	71,029
1860	67,084
1872	51,531
1884	44,232
1890	40,622
1896	39,504

Source: Schmitt, R.C. 1968. Demographic Statistics of Hawaiʻi: 1778-1965. Honolulu: Univ. of Hawaiʻi Press. Pp. 10, 74. Note: For the years 1853-1896 Kameʻeleihiwa (1992) included part-Hawaiian with Hawaiian. The 1778 estimate is from Stannard (1989).

Irrigation challenges were surmounted through the construction of aqueducts, artesian wells, and tunnels from mountain streams, enabling production on tens of thousands of acres of arid land throughout the state. Ditches, or flumes, and railroads facilitated transportation of sugarcane from harvest sites to the mills. Hawaiʻi's sugar growers needed a market for raw sugar that was reasonably close and of sufficient demand, and at that time the closest major market for raw sugar from the Kingdom of Hawaiʻi was the United States. Trade barriers were eased by the 1875 Treaty of Reciprocity between the two nations, which allowed for the duty-free entry of sugar into U.S. markets. The Treaty spurred increased investment in Hawaiʻi's sugar industry, with the number of sugar plantations nearly doubling from twenty-nine in 1867, to eighty in 1884 (Dorrance, 2000). The Hāmākua Coast, specifically a 20-mile section from Waipio Valley south to the town of ʻŌʻōkala, was the "premiere site for growing sugar on the Island of Hawaiʻi" (Dorrance, 2000). The first mill to open on Hawaiʻi Island was the Kohala Sugar Company in 1863. Thirteen years after sugar's arrival on Hawaiʻi Island the Hāmākua Coast

began to be planted, and the Honokaʻa Sugar Company opened in 1876. Sugar quickly became the state's leading economic activity, providing significant employment to local communities and tax revenues to local and state government, such that approximately ten tons per acre was the average yield in the latter half of the 20th century.

Many of Hawaiʻi's plantations started as independent enterprises, and merged over time as the industry consolidated. By the mid-twentieth century a small group of agribusinesses known as the 'Big Five' owned and controlled sugar production in Hawaiʻi. In 1945 the Big Five included: Alexander & Baldwin (now Alexander & Baldwin, Inc.); American Factors, Ltd. (today's Amfac/JMB Hawaiʻi, LLC, a wholly owned subsidiary of Northbrook Corporation in Chicago); Castle & Cooke, Ltd. (purchased by CEO of The Dole Food Company, David Murdock, in 1995); C. Brewer & Company, Ltd. (liquidated in 2001); and Theo H. Davies & Co., Ltd. (acquired by Jardine Matheson & Co. Ltd. in 1973). The Big Five worked closely together and dominated political and economic life in Hawaiʻi prior to statehood. The establishment of a state government in Hawaiʻi weakened the political clout of the Big Five and the government soon began to question their economic dominance. In 1964 the Department of Justice challenged the majority ownership of Matson Navigation, the main cargo shipping company in Hawaiʻi, which was owned by four of the Big Five companies, excluding Theo H. Davies and Company; ultimately A&B bought out the other three owners and acquired 94% of the Matson (Danninger, 2002). Hawaiʻi's present day rural landscape was deeply influenced by the role of the Big Five in developing Hawaiʻi's economy, as land was purchased by the agribusinesses and their subsidiaries across the state to grow sugarcane.

Alexander and Baldwin (A&B) began growing sugar on Maui in 1869 on twelve acres in Makawao and expanded to 88,000 acres at its peak, including 36,000 acres in Central Maui where the company owns and operates Hawaiian Commercial & Sugar (HC&S) Company, producing raw and specialty sugar and molasses and producing energy provided to Maui's utility company Maui Electric Company (MECO). A&B was the only member of the Big Five whose business originated in sugar, and the company was known for pioneering the first ditch irrigation system for sugar, which became a model for similar irrigation projects statewide, including the Hāmākua Ditch system on Hawaiʻi Island. Amfac was founded in 1849 as a merchandising firm in Honolulu and branched into sugar when the founder, Heinrich Hackfeld, became a business

agent for Koloa Plantation on Kauaʻi. The company was later sold to a consortium of companies that included A&B, Castle and Cook, and C. Brewer. Castle and Cook (C&C) was founded in 1851 by missionaries and specialized in farm tools and sewing machines until it became the Hawaiʻi agent for Matson Navigation in 1907. C&C was active in sugar in Paʻia and Haiku on Maui, until it sold these assets to invest in the Ewa Plantation on Oʻahu. C&C later diversified into pineapple by purchasing a majority share in the Jim Dole's Hawaiian Pineapple Company. C. Brewer & Company is the oldest of the Big Five, founded by Captain James Hunnewell in 1826. Originally a sandalwood trader with companies in China, Hunnewell grew his business into a trading house that supplied whaling ships, and finally entered Hawaiʻi's sugar cane industry in 1863 when he became an agent for three plantations on Maui. In the early 1900s C. Brewer and Company purchased the Pepeekeo Sugar Company on Hawaiʻi Island, and in 1959 they diversified into macadamia nuts under the name Mauna Loa Macadamia Nut Corporation. In the 1990s as the sugar industry waned, the company began leasing former sugar lands to small diversified producers along the Hāmākua Coast, and in 2001 when the company was liquidated they began to sell off their 70,000 acres of land centered north of Hilo on the Hāmākua Coast. Theo H. Davies & Co., the smallest of the Big Five, began in England in 1845 as a small trading company before expanding into sugar, transportation, and insurance. The company was invested in sugar on Hawaiʻi Island, including owning Hāmākua Sugar Company, the state's second largest sugar plantation, which consisted of over 35,000 acres, two mills, and sixteen miles of highway (Hollie, 1984); in 1984 the company sold Hāmākua Sugar Company to Francis S. Morgan, who oversaw the company until its closure in 1994.

By the 1980s Hawaiʻi's sugar industry was producing more sugar per acre with fewer man hours than anywhere else in the world, according to the Hawaiian Sugar Planter's Association, a non-profit trade group which facilitated sugar marketing for Hawaiʻi's growers (Taggart, 1985). The industry in Hawaiʻi was competitive with other domestic and foreign producers due to the development of new sugarcane varieties, drip irrigation techniques, improvements in processing efficiency, and effective pest control. However, in the mid-1980s producers began taking low-yielding fields out of production, and acreage in sugarcane decreased from 217,718 in 1980 to 161,991 in 1990, and again to 83,810 in 1995 as the industry came to an end (Dorrance, 2000). Lands taken out of production, particularly on the islands of

Oʻahu, Kauaʻi, and Maui, were sold to urban developers to meet the needs of Hawaiʻi's growing population. In 1985 the former chairman of Castle & Cook referred to sugar as 'a dying industry', which was considered by many sugar industrialists to be a premature statement at the time; the chairman believed that "the sooner it was allowed to expire, the sooner real progress would be made to find alternatives" (Dorrance, 2000).

In the 1980s Florida became the nation's largest sugar producer, while Hawaiʻi fell to second, with operating profits derived largely from the sale of molasses and electricity generated as byproducts of sugar cultivation (Dorrance, 2000). Despite the industry's successes in increasing productivity, global competition was working to undermine the production of sugar in Hawaiʻi. The industry's viability was threatened by a multitude of internal and external factors including: worldwide oversupply, declining consumption, product competition (e.g., artificial sweeteners, sugar beets, high fructose corn syrup), reduced price supports, and high labor and operating costs which resulted in thin profit margins. The state witnessed the end of 'big ag' with the announcement from Alexander and Baldwin (A&B) in 2016 that they would be closing HC&S, the state's last remaining plantation located on Maui. "We have made every effort to avoid having to take this action," A&B Executive Chairman Stanley Kuriyama stated, "however, the roughly $30 million agribusiness operating loss we expect to incur in 2015, and the forecast for continued significant losses, clearly are not sustainable, and we must now move forward with a new concept for our lands that allows us to keep them in productive agricultural use" (HNN, 2016).

The decline of Hawaiʻi's sugarcane industry has left a hole in many rural communities, as they were faced with severe unemployment, vacancies in land use, and severely altered socio-economic structures. The closure of Hāmākua Sugar Company alone left over four hundred families in the Hāmākua area without work and made available approximately 68,000 acres (34,560 acres from Hāmākua Sugar Corporation alone) of former sugarcane lands (Terry, 1996). The closure of remaining mills on Hawaiʻi Island left over 1,500 former sugarcane workers unemployed. When the plantations closed some displaced sugar workers successfully integrated into emerging industries, such as construction and tourism, through state and privately sponsored training programs, while others retired, or pursued general labor opportunities in diversified agriculture, landscaping, maintenance, and other related livelihoods. When one door closes

another opens, and the opportunity then presented itself for rural communities to pursue other forms of property ownership and land use, and to envision, for themselves, a new landscape post-sugar. While individual agency to enact a new future on the landscape has been somewhat limited by the land tenure patterns that emerged atop the former sugarcane lands, the new rural landscape and the diversified agricultural economy continue to develop along a trajectory unique to Hawaiʻi.

Diversified Agriculture

Agricultural Discourse

While conversations about saving the family farm have been ongoing since the middle of the 20th century, the new local food movement has served to reinvigorate discussions at both the global and local level. Elements from this popular cultural phenomenon have been incorporated into Hawaiʻi-based conversations, specifically the concepts of food self-sufficiency and self-reliance, and the value of small farms. This global movement, occurring on both the production and consumption side of agriculture, has contributed to bringing people back to the land to pursue agrarian lifestyles and livelihoods, and fueled consumer interest in purchasing locally-grown produce (Barber, 2014; Belasco, 2006; Bittman, 2008; Kingsolver, 2007; Moss, 2013; Pollan, 2006; Pollan, 2009a; Pollan, 2009b; Pollan, 2013; Roberts, 2008; Salatin, 2013;). Francis Moore Lappe's *Diet for a Small Planet* served to launch a national discussion on the environmental impacts of food production and the most effective means to address hunger (Lappe, 1971). The conversation was popularized throughout the early 21st century by writers concerned with America's over-reliance on fast, convenient food and its repercussions on environmental and human health (Schlosser, 2001; Nestle, 2007; Pollan, 2006). When individuals became disheartened with the stories told in these popular food books, writers began providing consumers with prescriptions on how to purchase and eat consciously (Nestle, 2007; Kingsolver, 2007; Pollan, 2009a; Pollan 2009b; Barber, 2014). Hawaiʻi residents have joined the global food movement through their participation in school gardens, Slow Food chapters, food-related festivals, Food Policy Councils, and by voting with their dollar and choosing locally-grown produce in stores and farmers markets.

In the 1990's, concerned about the impending economic impacts from the loss of the industry, Hawaiʻi's state and county governments pushed for the replacement of plantation farming with 'diversified agricultural' production, hoping this new agrarian approach would replace sugar, both ecologically on the landscape and socio-economically throughout the islands rural communities. Recognizing the decreasing dominance of Hawaiʻi's position in the global sugarcane industry, Hawaiʻi's residents and politicians began to broaden their support for the state's agricultural industry. In 1978 residents voted to amend the Hawaiʻi State Constitution to require the State to "conserve and protect agricultural lands, promote diversified agriculture, increase agricultural self-sufficiency, and assure the availability of agriculturally suitable lands (Article XI, section 3, In Lee, 2011:178)." Legislative measures concerning land use, particularly Important Agricultural Lands policies, began to be discussed in policy circles as important tools to preserve agricultural land due to changes in rural land tenure and increased urban and residential development pressures. Policy makers and academics also began to explore the term 'self-sufficiency' to determine what this meant in a Hawaiʻi context, and what mechanisms needed to be in place to aid in its development and support diversified agriculture in general.

Governors Lingle and Abercrombie voiced support for the idea of 'self-sufficiency,' by encouraging Hawaiʻi's farmers to look at import replacement and grow produce that is commonly shipped in from overseas; they also urged Hawaiʻi's schools, prisons, and hospitals to purchase locally grown produce and protein (Lingle, 2009). In the State of the State Address given by Governor Lingle in 2009 she stressed the importance of food self-sufficiency in Hawaiʻi, noting that the State imports approximately 85% of the agricultural products its population consumes (Lingle, 2009). Similarly, Gov. Abercrombie emphasized that agriculture is "part of Hawaiʻi's history and way of life" (HDOA, 2013) and called on the state to decrease its reliance on U.S. mainland and international food markets.

> Hawaiʻi is collectively 'going out to eat' at a cost of about $3 billion, which leaves our economy each year. Producing just 10% of that mount local would keep $300 million circulating on our own economy. (Abercrombie, 2010)

Governor Abercrombie also appealed to the population by referencing a commonly held fear, *what if the boat stops coming?*

> Producing more of our own food in Hawaiʻi will … make us more secure against disruptions to our food supply lines. … Our dependency on imported food is a problem we ignore at our peril. Any disruptions to food supply lines – international crises, natural disasters, or labor disputes – would leave us with less than a week of food. (Abercrombie, 2010)

Community members and environmentalists in Hawaiʻi also began to voice their concerns regarding the protection of rural places and agricultural land from excessive development and scattered growth, and began urging the State to adopt additional policies to preserve Hawaiʻi's agrarian character and agricultural lands (Suryanata and Lowry, 2016). Planning sessions and community working groups were convened to address the challenges resulting from the closure of Hawaiʻi's sugar plantations, and plan for a new rural landscape and economy. These planning processes have supported the implementation of diversified agricultural projects along the Waimea-Hāmākua corridor geared towards facilitating the development of the region's agricultural economy, and thereby increase the state's level of food self-sufficiency.

Food self-sufficiency goals for Hawaiʻi County were first mentioned in 1992 as the island began transitioning from plantation to diversified agricultural production. The first Agriculture Development Plan (COH, 1992) implemented by the County recognized the changing nature of agriculture, which was witnessing the growth of diversified crops including taro, coffee, macadamia nuts, bananas, papayas, ginger, and other fruits and vegetables. Concerned with the accelerated rate of commercial, resort, and residential development, then Mayor Lorraine Inouye placed a high priority on "identifying ways the County can assist local farmers and the island's agricultural activities to assure long-range stability and maintain the County of Hawaiʻi as the primary center for agriculture in the state" (COH, 1992). The Plan (COH, 1992) called for the preservation of Hawaiʻi's agrarian character "because of its importance to local lifestyles and the tourism industry" and the production of "at least 80% of the island's demand for fresh agricultural products." Almost ten years later, the County's General Plan (COH, 2005) reiterated the potential of the local agricultural industry.

> Agricultural employment will increase significantly as former sugarcane lands are brought into production with import replacement, export and value added crops and products. (COH, 2005)

The 2005 plan went on to identify agriculture as one of four primary income generators for the County, "an industry that will generate income from outside the County and determine long-run patterns of population and income growth … in addition to driving secondary industries of wholesaling, retailing, and services" (COH, 2005). In 2010 the County revised the 1992 Agriculture Development Plan, which could now account for the complete transition out of plantation agriculture and the County's adoption of diversified agriculture. The 2010 plan (COH, 2012) was guided by the vision statement: "A thriving and sustainable agriculture industry is a vital contributor to Hawai'i County's economy, rural lifestyle, and character, by producing food, fiber, energy, and ornamentals for local consumption and export." Self-sufficiency goals were revised down from 80% stated in 1992, calling for Hawai'i Island to expand food production to be able to supply 30% of the County's food demands by 2020 (COH, 2012).

In the study site, once the closure of Hāmākua Sugar Company was announced, a community task force was formed to address challenges associated with housing, employment and training, economic development, and the transition of agricultural land (COH, 2006). Hāmākua's first visioning project was held in 1995, following the closure of Hāmākua Sugar Company, in response to the need to transition displaced sugar workers into new job opportunities. Participants in the visioning exercise expressed the desire to have "'a thousand points of green,' representing 1,000 successful small farms and ranchers to take the place of one monolithic crop and employer" (COH, 2006). The Plan for the Hilo Hāmākua Coast (Kramer, 2000), crafted five years later, called for the creation of a "resilient, diverse, and innovative economy in which land, labor, capital, and entrepreneurial ability produce a healthy mix of goods and services for residents, visitors and external markets"; a plan that could be executed in part by supporting Hawai'i's agricultural industry through the formation of agricultural cooperatives, enhancing market opportunities, creating facilities for small business incubation, and identifying alternative sources of financing for agricultural entrepreneurs. One year later the Hāmākua Agricultural Plan (COH, 2006), building on the vision behind the 1996 community plan, continued to emphasize "fostering economic success for agricultural producers." Because the needle had moved very little since the 1995 visioning exercise, local newspapers began to express doubts about the community's vision.

> Hāmākua's plan, which tries to preserve the community's rural lifestyle and integrity, while fostering controlled economic growth, may serve as a valuable guidepost. But can Hāmākua's plan of 1,000 points of green–its combination of diversified agriculture, specialty agriculture, agritourism and cultural tourism–sustain the 6,500-plus community, let alone any other area in the state? (Choo, 2005)

Another decade later, the 2015 Hāmākua Community Development Plan echoed the values and visions expressed in the previous three planning initiatives, describing Hāmākua as "a rural community of distinctive small town and villages thriving on sustainable agriculture and ranching to provide ourselves and the rest of Hawaiʻi with healthy food and locally grown products" (COH, 2015). The 2015 plan did not include benchmarks for food self-sufficiency, however agricultural policy recommendations that were included referenced self-sufficiency goals as stated in previous State and County planning reports.

Agriculture on the Landscape

Addressing the economic void of Hawaiʻi's sugarcane industry has proved challenging. Throughout the 1990s, during the closure of many of Hawaiʻi's sugar mills, the state faced a severe budget deficit. Governor Ben Cayetano, serving Hawaiʻi between 1994 and 2002, faced public criticism for his lack of support of displaced sugar workers (Bacon, 1995). However, as the economy recovered at the beginning of the 21st century, local leaders began designing initiatives to support Hawaiʻi's diversified agricultural industry. During Governor Lingle's term, between 2002 to 2010, her administration oversaw several agricultural initiatives including the Hawaiʻi Seals of Quality program to brand Hawaiʻi-grown and Hawaiʻi-made products; the HDOA 'Buy Fresh, Buy Local" campaign; micro-lending programs for island farmers; legislation to preserve important agriculture land; and the dedication of funds for water systems. Governor Abercrombie, serving Hawaiʻi between 2010 and 2014, had similar agricultural aspirations including enhancing food security, spurring entrepreneurial farming and agricultural innovation, preserving and advancing rural communities, and promoting dialogue and planning towards a shared commitment to agriculture.

Despite the advancements that State and County governments have made to facilitate the development of diversified agriculture, principles of self-sufficiency as expressed in the State's constitution and by local leaders have not yet been fully realized. Some researchers believe the goal of being 100% self-sufficient may be "impractical, unattainable, and perhaps impossible, as it imposes too high a cost for society" (Leung and Loke, 2008). Data from Federal census programs on Hawaiʻi's diversified agricultural industry cannot be misinterpreted as evidence that Hawaiʻi's level of food self-sufficiency is increasing, as the statistics include export products and non-edible products (e.g., greenhouse and nursery goods). In spite of the growth in Hawaiʻi's diversified agriculture industry since the closure of the plantations – with reports of 50% rise in its percentage of total farm production in 1992, to almost 70% in 2000 (Leung and Loke, 2002) – the industry continues to be dominated by seed corn sales, livestock production, and fruit and tree nuts, the majority of which are destined for export markets (FAS, 2014; NASS, 2013). While the diversified agriculture industry has grown steadily since 1997, according to crop sales statistics, it has not increased as fast as other industries in Hawaiʻi such as tourism; consequently Leung and Loke (2008) found that the contribution of agriculture to the state's GDP declined from 1.6% in 1997 to 1.2% in 2005, a trend which was mirrored nationally and that the authors predict will continue into the future. In comparison, in 2010 the contribution of tourism to the State's GDP was approximately 16.4% (Tian et al., 2011). Leung and Loke (2008) found similar trends in agricultural employment which declined from 25,809 jobs in 1997 to 23,200 jobs in 2005; the highest number of jobs were lost in forestry, fishing and related activities, and to a lesser extent in food product manufacturing and crop and animal production. While agricultural employment constituted 2.8% of the state's total employment in 2008, the industry continues to provide many part- and full-time jobs to residents across the state; however income derived from agricultural labor continues to remain low.

While research has shown that overall Hawaiʻi's self-sufficiency declined between the period 1995 and 2005, local vegetable production has outpaced consumption by 1.5% during this period and beef production and consumption rates remaining fairly stable (Leung and Loke, 2008). Hawaiʻi has seen declines during this period in the production of pork, milk and cream, eggs, and fruit, with imported goods replacing local production to keep pace with rising consumer demand (Leung and Loke, 2008; Melrose and Delparte, 2012). This trend points to the

success of diversified agriculture in terms of vegetable production, with challenges remaining for other agricultural sectors where overseas markets, capable of capturing economies of scale, are realizing greater profits.

There has been a steady increase in the number of farms in Hawaiʻi between 1997 and 2012. Diversified agricultural crops were grown on approximately 7,000 farms across the state in 2012, up from 5,473 in 1997, including part-time and full-time operations: a total of 10.6% (744) of which sold vegetables, 42.4% (2976) sold orchard crops, and 23.8% (1668) were livestock/poultry operations. In comparison, the majority of farms in Hawaiʻi County in 2012 were also orchards (fruit and tree nut farms) at 54% (2,300) and livestock or poultry operations at 23.9% (1,017), with only 5.6% (238) of farms producing vegetables and melons. Consequently the value of vegetable sales statewide accounted for just 4.7% of all agricultural commodity sales in 2012, with grains (primarily corn seed) and 'fruit and tree nuts' each accounting for 28%, and livestock sales comprising 23% of sales; the majority of which sold through the state's export markets. Despite Hawaiʻi Island accounting for approximately 60% of the total acreage farmed statewide and total farms, the overall market value of agricultural sales represents only 40% of the states total sales; this is due to a disproportionate ratio of livestock acreage on Hawaiʻi Island. In 2012 Hawaiʻi's agricultural exports reached $560 million, accounting for 77% of total farm receipts, with seed sales valuing $218 million (FAS, 2014). And in Hawaiʻi's cattle industry, 73% of all cattle marketed in 2012 were for export, with calves (under 500 lbs.) accounting for 97% of the exports (NASS, 2013).

Trends in farm characteristics in Hawaiʻi closely mirror those on the U.S. mainland in some respects, particularly in the number of small family farms with low annual sales. The majority of farms in the U.S. and in Hawaiʻi are small family farms; nevertheless, large family and non-family farms continue to produce the largest share of agricultural output. Not coincidentally, large-scale farms typically have positive profit margins and rates of return, whereas small farm types typically are negative in these categories (Hoppe and Banker, 2010). Yet small farms persist in general because of their reliance on off-farm income, through wage and salary jobs or self-employment; retirement farms receive off-farm income from sources that include Social Security, pensions, dividends, interest, and rent (Hoppe and Banker, 2010). In 2012, the majority of farms in the state (78.4%) and Hawaiʻi County (80%) had sales under

$25,000; a total of 30% of farms in both the state and Hawaiʻi County had sales under $2,500 in the same year. These sales figures indicate that income derived from agricultural production on most farms falls below the federal poverty level estimates set at $26,510 in 2012 for a family of four. Consequently, it is not surprising to note the number of farm operators whose primary occupation is farming; in 2012 a total of 52% and 49% of farmers, in Hawaiʻi and Hawaiʻi County respectively, relied primarily on agricultural income.

On Oʻahu where the market is larger and there are a greater number of premium buyers, small farms are more successful. However on Hawaiʻi Island where markets are limited, premium markets are typically cornered by larger vegetable farms, making it more challenging for those with smaller farms to compete. According to the U.S. Census, in 2012 the majority of the farms in Hawaiʻi were less than 10 acres in size, with a total of 94.5% and 88.2% of all farms in the state and County, respectively, at less than 50 acres in size. While the average size of farms in Hawaiʻi and Hawaiʻi County was 160 acres in 2012, the median farm size was approximately 5 acres. The average farm size is driven up by large orchards and ranchland, while the majority of small crop production occurs on smaller lots. In comparison, in 2007 the average size of vegetable, potato, and melon farms in the U.S. was 228 acres. This is significant as Hawaiʻi producers compete with mainland and international vegetable markets, where farmers enjoy economies of scale afforded by larger farms. While the number of small farms in the U.S. is increasing, with just over two thirds of farms in the U.S. operating on fewer than 180 acres in 2012, the four percent of farms with 2000 or more acres made up more than half (55%) of all U.S. farmland.

Agriculture in Practice: Labor, Land, Capital, and Knowledge

Community and county-level planning processes help identify local level challenges and opportunities in agriculture which can be used by state and county governments to assist in the prioritization of funding for agricultural initiatives. However, in many planning meetings attended for this research, participants felt that while government institutions identify agricultural goals and priorities on paper, and speak about the importance of agriculture in local meetings, they often fail to see them through in local communities (HDOL, 2013). The evolution of the visions for agriculture, as contained in planning documents, show little change in community's

goals and aspirations for agriculture between the 1990's and present day, which sheds light on the difficult nature of creating an industry.

Diversified agriculture has gained considerable ground in post-plantation Hawaiʻi, however producers face several barriers to sustained, and viable agricultural production. These barriers often include access to: affordably priced, quality farmland; dependable skilled labor; sufficient business capital; and knowledge. These four challenges are discussed repeatedly at state and local planning meetings where the future of and the support needed for Hawaiʻi's diversified agricultural industry is debated. At these meetings one hears stories of successful commercial farmers[3], heralded by institutional representatives as examples of Hāmākua Coast's agricultural potential; however the same handful of names are repeatedly used, evidence that the factors facilitating commercial farming come together infrequently and for a limited number of individuals. Moreover, research findings indicate that these biographies are typically characterized by unique family histories in farming, access to niche markets, or by off-farm employment or other income streams that subsidize farming efforts. This section explores the challenges associated with labor, land, capital, and knowledge as referenced in state and county planning initiatives. Unfortunately, the obstacles surrounding agriculture discussed in planning initiatives during the 1990s are similar to those mentioned in 2015, indicating the failure of the industry to overcome these barriers due to their difficult nature.

Access to Labor

> There are so many unemployed people, but something is preventing unemployed/underemployed from working in farming. (HDOL, 2013)

The labor challenge in Hawaiʻi's agricultural industry is profound and affects both large and small-scale operations (Mostafanezhad et al., 2016; HDOL, 2013; Melrose and Delparte, 2012). Hawaiʻi's commercial agricultural industry has historically depended on immigrant labor to sustain itself (Dorrance, 2000; Melrose and Delparte, 2012; Takaki, 1995; Okamura, 2008). When commercial sugarcane arrived in the islands it became evident to plantation owners that if they desired a reliable workforce they needed to encourage immigration from abroad, as the

[3] Unfortunately two of the most commonly cited successful farmers on Hawaiʻi Island both plan on closing their farms in 2016 or shortly thereafter, due to challenges related to labor, land, and capital.

majority of Native Hawaiians were not interested in working in sugarcane fields and factories. Consequently, plantation owners began recruiting workers from China in the 1850s; by 1884 Chinese constituted 22% of Hawaiʻi's population and held 49% of Hawaiʻi's plantation field jobs (University of Hawaiʻi, 2016). In the late 1800s plantations began recruiting workers from other countries, including China, Japan, Spain, Puerto Rico, Korea, Portugal, and the Pacific Islands.

The disciplining of Hawaiʻi's plantation laborers was achieved by maintaining a hierarchical plantation structure, and through ethnic diversification and segregation strategies. The paternalistic behavior of many plantation managers – who saw themselves as 'guardians', responsible for workers' well-being and community contentment – served to maintain a caste-like structure defined largely by ethnicity and class (Takaki, 1983). Diversification was obtained by contracting workers from various ethnic populations who were then segregated into residential camps accordingly. Ethnic segregation, in both living arrangements and work responsibilities, was done to prevent worker organization and increase inter-ethnic competition, thereby enhancing job performance. Racially-based initiatives, such as the 'race pride' program implemented by Hilo Sugar Company Plantation, were designed to stimulate rivalry between ethnic groups and reduce absenteeism:

> At the place where the section *luna* (boss) meets his men in the morning, a board on which the timekeeper places each morning the daily attendance of the previous day. This is listed by nationalities the idea being to bring up the attendance of Filipinos and Spaniards to that of Japanese. This appeal to race pride has, we understand, produced good results in the few months the plan has been in operation. (Takaki, 1983)

Plantation management also relied on coercive methods to discipline laborers, including a docking, or fine system, where workers were charged fees for misconduct, including 'refusal to do work as ordered,' 'insubordination,' 'drunken brawling,' 'gambling in Japanese or Chinese camps,' etc. (Takaki, 1983). The occupational stratification of the plantation was largely structured around racial categories, with the majority of supervisory roles filled by Caucasians or Portuguese, and members of racial groups paid at different wage rates for performing the same tasks (Takaki, 1983; University of Hawaiʻi, 2016). Worker discontent began to surface in the early 1900s when a strike took place on Oʻahu that originated from the discrepancy in pay

between the Japanese who were receiving less pay than the Portuguese and Puerto Ricans. In the 1920s multi-ethnic resistance movements began and led to the eventual creation of the International Longshoremen's and Warehousemen's Union in 1945 which brought together "laborers of all nationalities" to fight for collective bargaining and higher wages (Takaki, 1983). The combined effects of unionization, statehood, and the civil rights movement ultimately rendered the plantation's exploitative means of labor control unacceptable and illegal (Mostafanezhad et al., 2015).

Today, the bulk of Hawaiʻi's agricultural workers continue to be drawn from immigrant labor pools, particularly on larger farms, which perpetuates the inequalities in race and citizenship that were seen during the plantation era and that continue in agricultural operations across the U.S. (Mostafanezhad et al., 2015; Friedland et al., 1981; Mitchell, 1996; Thomas, 1992). Consequently, Hawaiʻi's diversified agricultural industry is facing the same labor question as it was in the 1800s – how best to recruit and mobilize labor so that farms and workers can reproduce themselves (Mostafanezhad et al., 2016).

> If Hawaiʻi is going to increase its agricultural sector, somebody's gonna have to do the work in the fields. A lot of the local people don't want to do that type of work, so where is that labor going to come from? –Mae Nakahata, President of the Hawaiʻi Farm Bureau Federation (In Park, 2010)

Local agricultural labor markets are impacted by overall unemployment rates, agricultural production levels and wage rates, and government intervention such as farm and trade policies. The transition to diversified agriculture also changed the number and diversity of agricultural opportunities available to the local labor force; plantations offered a consistent number of positions to community members, whereas newer diversified farming operations are not as labor intensive as sugar and therefore fewer jobs in agricultural are available (COH, 2015). As of 2011, natural resource jobs (agriculture, forestry, and fishing) only accounted for 2.6% of employment in Honokaʻa, 5.1% in Paʻauilo, and 3.9% in Laupāhoehoe, three of the rural communities in the field area (NASS, 2011). According to Martin (2007), one of the most important government interventions that affect labor market adjustments is immigration. According to the U.S. Department of Labor, over three-fourths of the hired workers employed on U.S. crop farms were born outside the U.S., usually in Mexico; the same survey found that 53

percent of crop workers in the U.S. were unauthorized (Martin, 2007). In Hawaiʻi the number of Latinos or Hispanics was approximately 115,000 in 2009, or 9% of the population (primarily of Puerto Rican and Mexican descent), and immigration rates among Latinos continue to rise.

Despite Hawaiʻi's geographic isolation, illegal immigration is increasingly becoming a problem for Hawaiʻi's agricultural industry. The number of illegal immigrants and undocumented workers in the agricultural industry is difficult to predict, but a 2006 study by the Pew Hispanic Center revealed that Hawaiʻi is home to 20,000 to 35,000 undocumented migrant workers (Keany, 2009). To obtain an estimate of Hawaiʻi's immigrant population Keany (2009) looked at data from the Honolulu Immigration Court which revealed that the majority of Hawaiʻi's cases in 2007 involved Mexican immigrants (32%), with the next highest percentage of cases involving Chinese (17%) and Filipino (16%) immigrants; the majority of foreign nationals were entering the U.S. on legitimate visas but failing to leave when their visa expires. According to Dean Okimoto, former president of the Hawaiʻi Farm Bureau and owner of Nalo Farms on Oʻahu (Associated Press, 2008), "there are probably more [undocumented workers] today than there were five years ago, and I mean it's because they're needed." Okimoto went on to say:

> I need at least probably eight more [laborers], and I can't even find one … It's not surprising at all because just to keep the farms going or to expand, it's really difficult. … I do think immigrant workers are key to the agriculture industry. It's how it's survived all these years, even on the mainland. –Dean Okimoto, President, Nalo Farm (In Associated Press, 2008)

In the early 1990s when Hawaiʻi's labor market was in short supply, some farms began recruiting Latino immigrants from the U.S. mainland. For example, in 1992 Maui Land and Pineapple Company recruited 33 Mexican farm workers from California to harvest pineapple, providing low-cost company housing, permanent full-time positions, and wages of $8.37 an hour (Rotella, 1992). Unfortunately, the economic collapse of 2008 led to the layoff of many agricultural workers across the state, with Maui Land and Pineapple Company laying off 204 workers in the summer of 2008 (Pacific Business News, 2009). The 2012 U.S. Census of Agriculture revealed that Hispanics claim the highest rate of new farmers in the nation, with a 21% increase between 2007 and 2012 in the number farm operators of Hispanic descent in the U.S. (Vega et al., 2014). Some suggest that this increase is due in part the turnover of retirement

age farmers whose children have no interest in pursuing farming as a career, opening up an opportunity for Hispanic and Latino immigrants and farm workers (González, 2011).

In addition to hiring and recruiting immigrant labor, farms in Hawaiʻi are increasingly reliant on the H-2A guest worker program, which allows farms who "anticipate a shortage of domestic workers" to bring nonimmigrant foreign workers to the U.S. to perform temporary or seasonal agricultural labor (USDOL, 2011). The program provides over 50,000 foreign nationals to U.S. agribusinesses annually, and allows guest workers to stay in the U.S. on one to three year contracts as temporary wage workers. The drawback of the guest worker program is that workers are brought in by a single employer, and if that employer does not have sufficient work, the guest worker is not allowed to look for work elsewhere. In 2009 a total of 268 requests were made by Hawaiʻi-based farms for H-2A workers, 231 of which were approved by the U.S. Department of Labor (Park, 2010). Although farmers and media reports continuously speak about the lack of farmers and farm workers, the extent to which sufficient labor is available locally is difficult to determine. Moreover, farm labor shortages typically quote employers saying they have fewer laborers than desired; "for example, a farm employer may claim a labor shortage if there is a crew of 30 working but a crew of 40 is preferred" (Martin, 2007). Further research is needed to understand the claims made by producers concerning worker shortages, the extent to which H-2A guest workers contribute to Hawaiʻi's agricultural labor force, the ethnic makeup of Hawaiʻi's agricultural labor force, and the labor and production coping strategies employed by producers that claim labor shortages (e.g., higher wage rates, benefit offerings, skipped harvests or plantings, increased mechanization).

State and county level planning initiatives repeatedly identify the lack of affordable housing as a barrier to increased food production and the development of viable agricultural businesses, including: Hāmākua Agricultural Plan (COH, 2006), County of Hawaiʻi Agriculture Development Plan (COH, 1992), County of Hawaiʻi General Plan (COH, 2005), Hawaiʻi County Food Self Sufficiency Baseline Study (Melrose and Delparte, 2012), County of Hawaiʻi Agriculture Development Plan (COH, 2012), the Hāmākua Community Development Plan (COH, 2015), and the State-wide Final Report of the Agricultural Skills Panel (HDOL, 2013). The 2010 Hawaiʻi County Agriculture Development Plan identified a potential solution to advancing affordable housing options. It called for 'legal ways' that farmers could reside on land

with minimal residential infrastructure, which would allow for improvements as the business became more profitable (COH, 2012).

> The lack of simple regulations to permit farm worker housing construction is a serious problem for farmers who require housing to attract farm labor for their operation. Clustering of farm labor housing or the use of barrack-type facilities are needed if agriculture is to expand. Therefore, the County should support pilot agricultural worker housing projects on Hawaiʻi Island, which may include temporary worker housing. (COH, 2012)

The County's General Plan, created five years earlier, also called for the development of farm labor housing projects that minimize the use of important agricultural lands and are "consistent with the character of surrounding land uses" (COH, 2005). The creation of farm worker housing was an incentive mentioned in the Agricultural Skill Panel meetings to attract and retain workers in Hawaiʻi's agricultural industry (HDOL, 2013). While the implementation of provisions for farm worker housing is key to industry development, consideration must be given to the way in which it occurs so that development permissions do not drive up agricultural land values further. The designation between important agricultural land (IAL) and other agricultural land may help facilitate the development of worker housing in some areas. The County (COH, 2005) stated that land use distinctions (such as IAL and 'other') should influence evaluative criteria in considering zone changes, permitted uses on land, minimum lot size requirements, and subdivision development standards. Where 'rural-style residential-agricultural development' occurs, the County sees the opportunity for a mix of residential and small-scale agricultural activities, with the primary intent of the developments being to provide an "added range to housing opportunities" (COH, 2005).

The ability of a farmer to find labor is partially related to the ability of the industry to attract new farmers. The Agricultural Skills Panel summarized the challenge saying, "to attract a younger generation of workers, the old perception of agriculture as a low-skilled, low wage job will need to be overturned" (HDOL, 2013). According to Jim Hollyer, former Director of the University of Hawaiʻi's program for Agricultural Development in the American Pacific, "there is a shortage of people living in Hawaiʻi now who want to fill existing job openings on Hawaiʻi farms at the wages offered" (Koga, 2010). Agricultural wages are often above minimum wage,

"on average it's about $11.40 an hour," according to Dr. Matthew Loke, the state's Agricultural Development Division administrator (Koga, 2010), however:

> [Y]ou have to work all day in the sun. It's hard work. Kids today would rather work in the mall where there's air conditioning. So … maybe $11.40 is not enough. Maybe it needs to be $14.40. But in order to pay workers $14.40, you have to really be selling some high-end stuff. You can't do that with watermelons. –Dr. Matthew Loke (In Koga, 2010)

Planning meeting participants commonly identified the inability of farmers to make a sufficient profit as a challenge to finding labor. Participants noted that farmers can "barely live on wages due to the high cost of living in Hawaiʻi", and that the key to increasing profits, so that farmers could pay living wages, was increasing public support and demand for the local agricultural industry and its products (HDOL, 2013).

Some participants in the Agricultural Skills Panel believe that local universities and community colleges are training students to work for seed companies (HDOL, 2013), while other interviewees felt that agricultural students were being educated to understand soil science and pest management, but were not receiving adequate business training to become successful farm owner-operators (UH-Hilo student, pers. comm., 2014). Consequently aspiring farmers were forced to rely on on-farm mentorships and community-based farmer training programs to learn the skills necessary for starting and running a commercial farm. Alternative farmer training programs were identified as a means to encourage Hawaiʻi's residents to explore agriculture as a profession. As of 2016 The National Incubator Farm Training Initiative (NIFTI) identified 119 farmer training incubators in North America that are providing farmer training and technical assistance to individuals and farms (NIFTI, 2016). While Hawaiʻi is home to several farmer training initiatives – at least four were operating in the field area while this research was conducted – the success rate of these programs in graduating participants that go on to become commercial farmers is currently not known. Despite the challenges associated with training new farmers, participants envisioned that in 10 to 20 years farmers will make a concerted effort to hire local workers first, which will come from a variety of avenues (HDOL, 2013).

> There will be more organizations facilitating learning to grow local labor (i.e., Maʻo Farms [on Oʻahu]), which will create a pool of workers who learn on the farm. Growing local labor for Ag will also be facilitated through schools. (HDOL, 2013)

Despite the slow steady trickle of young people into agricultural careers, the average age of farmers continues to rise; in 2012 the average age of farmers in Hawaiʻi County was 60.6 years of age (NASS, 2012). While there has been a steady growth in new farmer and agricultural workforce development training program, the majority of Hawaiʻi's commercial farms employ an older labor force. Many of today's younger farmers that are entering agriculture are turning to careers in organic agriculture. In a conversation between Hawaiʻi's agricultural policy makers and Michael Dimock, president of Roots of Change in California, an organization dedicated to establishing a sustainable food system in California by 2030, Dimock spoke about the contemporary role of young farmers:

> One of the reasons young farmers are not going into conventional farming anymore is because it's boring. Most of the farmers going into agriculture now are going into new systems, organic or otherwise. The kids of the conventional farmers are seeing that their parents are struggling to make a living. Or they're farming in ways that are highly criticized. And the kids don't want to be part of that. They want to be part of the future. –Michael Dimock (In Cheng, 2011)

Consequently, most conventional farmers in Hawaiʻi rely on labor from the island's immigrant communities while organic growers are able to attract laborers from diverse labor pools, including younger, beginning farmers, where they are available.

The challenges association with labor and the viability of diversified agriculture in general became evident in August 2009 when the co-owners of Aloun Farms, a vegetable farm based in Kapolei on Oʻahu, were indicted on three counts including document servitude, visa fraud, and conspiracy to commit forced labor. The press response, in Hawaiʻi and nationally, to the Aloun Farms indictment was swift and opinionated. According to a New York Times editorial:

> They were set up in cramped, substandard housing – some lived in a shipping container. Many saw their paychecks chiseled with deductions for food and expenses; some toiled in the fields for no net pay. Workers were told not to complain or be sent home, with no way to repay their unbearable debts. (Downes, 2010)

While it is not uncommon for workers to go into debt to pay job recruitment companies, the recruitment fees paid by the Thai workers to the recruitment company were as high as $20,000

per person. Dependency is established as workers leverage possessions and finances back home in anticipation of employment in the U.S., and when employment promises are not met or fall below worker expectations as outlined in contractual agreements, workers' families in their home country are left to deal with debt collectors and face the loss of personal possessions and family property (Downes, 2010).

Shortly after the Aloun Farms case, another incident involving 400 Thai farm workers was brought to the public's attention. In September 2010 the U.S. Department of Justice announced that a federal grand jury in Honolulu indicted four labor recruiters from Global Horizons Manpower Inc. and two Thailand-based recruiters for engaging in a conspiracy to commit forced labor and document servitude (USDOJ, 2010). Approximately 400 Thai farm workers were brought to the U.S. from Thailand, in what the Federal Bureau of Investigations (FBI) has called "the largest human trafficking case ever charged in U.S. history" (Associated Press, 2010). The workers have been assigned to worksites in thirteen states including Hawaiʻi, where they worked for over a dozen Hawaiʻi-based farms, including Aloun Farms; Maui Land and Pineapple Company; Del Monte; Kauaʻi Coffee; and other macadamia nut, coffee, and flower farms on Hawaiʻi Island (David, 2010; Geller, 2010a, Zimmerman, 2011). According to a Department of Justice announcement:

> The indictment also alleges that the defendants confined a group of Thai guest workers at Maui Pineapple Farm and demanded an additional fee of $3,750 to keep their jobs with Global Horizons. Those workers who refused to pay the additional fee were sent back home to Thailand with unpaid debts, subjecting them to the high risk of losing their family homes and land. (DOJ, 2010)

According to FBI agents (David, 2010), "the recruiters for Global Horizons sought out poor Thai individuals in Thailand and made them promises of high wages and good working conditions in exchange for jobs in Hawaiʻi." According to the indictment the workers each paid up to $21,000 in recruitment fees, an exorbitant price for individuals who, according to FBI agents (David, 2010) "didn't have a lot of money to pay so what they did was take out loans on their homes, their family farm, some of which had been in their families for generations, centuries even."

In 2013 Hawaiʻi Island's coffee growers were subject to a U.S. Department of Labor investigation which uncovered labor violations affecting 150 coffee workers. Common violations of the Fair Labor Standards Act (FLSA) included paying workers piece-rate wages below the

federal hourly minimum wage; improperly classifying nonexempt employees as exempt from receiving overtime pay; failure to pay employees for all hours worked; and failure to maintain records of employees' wages and work hours (USDOL, 2013). Additionally, the Department of Labor found two five-year old children picking coffee beans; under the FLSA, children under 12 may only work in agriculture on small farms where no employees are subject to the minimum wage requirements of the FLSA (USDOL, 2013).

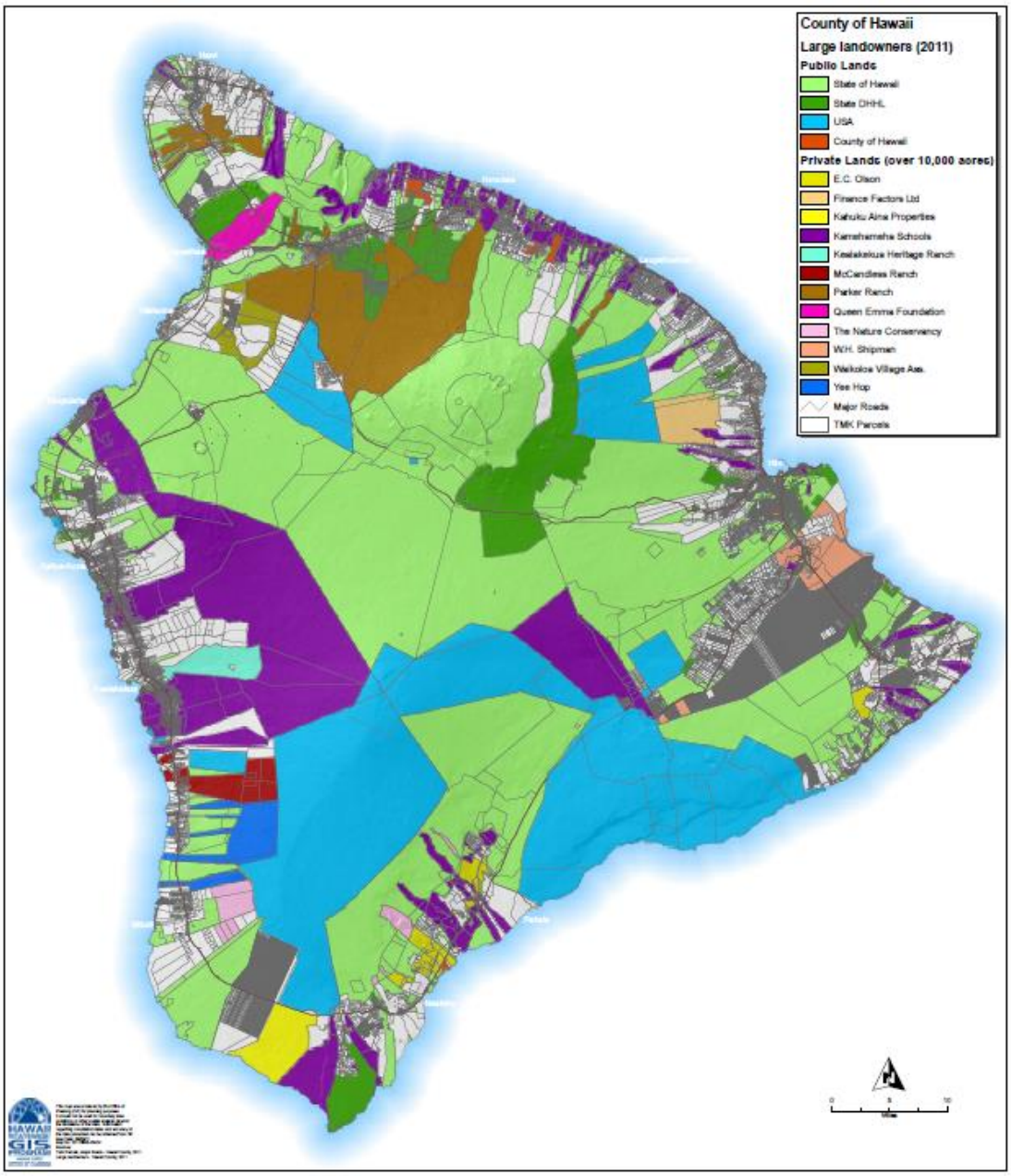
Access to Land

Land tenure post-sugar has had a significant impact on the direction of rural growth in Hawaiʻi and in the field area in particular. As the sugar industry declined the rural landscape was significantly altered through land ownership processes initiated by the failing sugar companies. In some areas land market and private property forces largely dictated the agricultural development patterns seen today, namely gentlemen and hobby farms; this is the case in some areas of North Hilo District where land was acquired by both developers and former plantation workers, with many former sugarcane employees selling their land and moving into Hilo following available employment. In other areas, including Hāmākua District, former sugarcane land fell into the hands of large landowners (i.e., the State of Hawaiʻi, the County of Hawaiʻi, Kamehameha Schools, and others) due to the financial standing of the former sugar companies. The current patchwork of land ownership in Hawaiʻi consists of popular landowners during Hawaiʻi's plantation period and some new players, however the land remains primarily owned by large landowners (see Figures 2.1 and 2.2): Parker Ranch (220,000 acres around the community of Waimea), Kamehameha Schools (37,000 acres in Hāmākua District with 6,542 acres leased to farmers and ranchers), the Department of Hawaiian Home Lands (27,000 acres in Waimea), W.H. Shipman Company (17,000 acres in Puna District), Edmund C. Olson Trust (15,000 acres in the Districts of Puna, Kaʻu, and South Hilo), the County of Hawaiʻi (2,457 acres in the communities of Kapulena and Paʻauilo), the State of Hawaiʻi (712 acres in the Hāmākua Agricultural Cooperative), and Bishop Museum[4] (537 acres in Waipio Valley). Additionally,

[4] In January 2016 Bishop Museum, based in Honolulu, announced it would sell its landholdings in Waipio Valley, totaling 537 acres (70% of the valley). Blair Collis, Bishop Museum President and CEO stated, "we are not land managers … it's really a recognition of stewardship and a decision to seek a better steward for Waipio Valley" (Gill, 2016). Approximately 40 working farms lease land from Bishop Museum in Waipio Valley. (Gill, 2016)

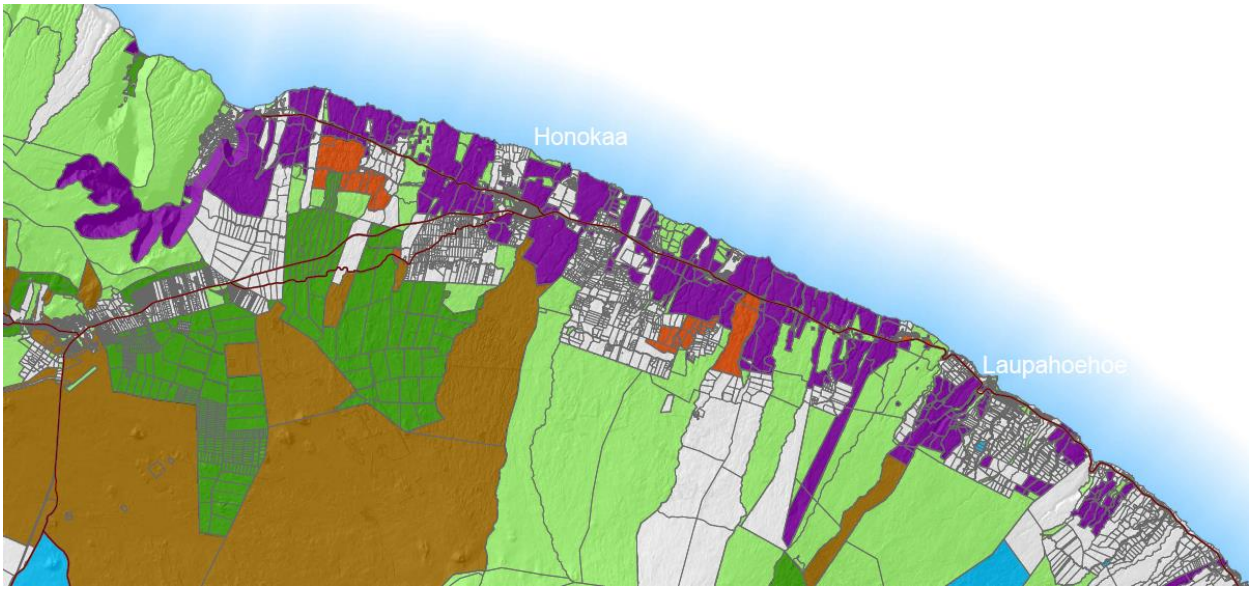
several private landowners own large parcels in this area; these owners consist of corporations, farming businesses, developers, and others. Consequently, the evolution of agriculture and rural landscapes, as evidenced in real estate markets, agricultural economies, and rural communities, varies considerably along the Hāmākua Coast.

Figure 2.1. County of Hawaiʻi: Large Landowners, 2011



Map credit: Hawaiʻi Office of Planning, Hawaiʻi Statewide GIS Program (Retrieved on 23 July 2013 from http://files.Hawaiʻi.gov/dbedt/op/gis/maps/Hawaiʻi_large_landowners.pdf)

Figure 2.2. Waimea to North Hilo, County of Hawaiʻi: Large Landowners, 2011



Map credit: Hawaiʻi Office of Planning, Hawaiʻi Statewide GIS Program,(Retrieved on 23 July 2013 from http://files.Hawaiʻi.gov/dbedt/op/gis/maps/Hawaiʻi_large_landowners.pdf)

Access to desirable agricultural land is critical for farmers. Numerous community and County agricultural plans have noted barriers to developing Hawaiʻi's agriculture industry that relate to land, including: the need to expand local control of land (Kramer, 2000); land availability, particularly the need to increase parcels available from large landowners (COH, 2005; Melrose and Delparte, 2012, COH, 2015); preserving land for agriculture (Kramer, 2000; COH, 1992; COH, 2005); the appropriate use of agricultural land (COH, 1992; COH, 2005; COH, 2012; COH, 2015; Melrose and Delparte, 2012); the rising value of agricultural land (COH, 2005); and issues relating to land tenure, including lease restrictions (COH, 2015). Many of these land issues are interrelated. For example, expanding local control of agricultural land is related to need to increase the availability of farmland from large landowners; however, while increasing the amount of leasehold land available does not provide for direct local control over the resource, it does provide residents with the option to participate in agriculture through short-term access. Preserving land for agriculture has a relationship to regulating land use and maintaining affordable prices for farmland. The need to ensure that Hawaiʻi's best agricultural

lands are protected from non-agricultural development will help determine the value of the land, ideally making it more affordable for farmers. And lastly, because many Hawaiʻi Island farmers rely on leasing land for agricultural production, land tenure structures and regulations are valuable means of increasing a farmer's likelihood of success.

Planning documents cite the need for increased availability of land that is currently held by large landowners. One challenge mentioned in the 1992 Agriculture Development Plan (COH, 1992) was that "large quantities of agricultural lands, controlled by a few entities are being held idle; this limits the supply of affordable lands." This was echoed in 2015 by the County's Community Development Plan which identified "over 60% of the land zoned for agriculture in Hāmākua is not being utilized for agricultural purposes." The County of Hawaiʻi General Plan (2005) called for "large landowners in the Hāmākua area in particular to make agricultural lands available for agriculture", to help address the problem of farmers being priced out of the countryside as values of land rise.

Numerous planning documents stressed the importance of using the zoning code as a tool to protect agricultural land from non-agricultural uses, specifically through the implementation of Important Agricultural Land (IAL) policies and incentives. Using IAL as a tool to conserve and protect agricultural lands was first proposed at the 1978 Constitutional Convention. In July 2005, Act 183 was approved by the Governor which allowed the State Department of Agriculture to work with various state departments and institutions on designing an IAL process and identifying incentives for IAL designation; in January 2007 the final report on incentives was prepared for the legislature. In 2008, Act 233 was enacted which established incentives, such as tax credits and loan guarantees, to encourage landowners to designate their lands as IAL (CTAHR, 2016). A total of seven incentives were established pertaining to farm dwellings, employee housing, tax credits, processing facilities, and others. As of 2014 a total of 101,548 acres of land had been designated by several large landowners including Alexander and Baldwin, Kamehameha Schools, Castle and Cook, and Parker Ranch. On Kauaʻi, landowner Steve Case, co-founder of America Online (AOL), dedicated 12,500 acres at Grove Farm for taro, seed corn, ranching, and biomass production for renewable energy (HDOA, 2016). The implementation of the IAL process has been slow and its impact is currently uncertain, and with the counties having until 2023 to designate IAL land with the Land Use Commission (CTAHR, 2016), land markets

have more time to influence the sale of agricultural lands in prime farming areas. However, Hawaiʻi County believes that "by providing opportunities to satisfy the demand for a rural lifestyle on marginal agricultural land, pressures to develop important agricultural land for these purposes would be decreased" (COH, 2005). Hawaiʻi County real property tax policies also provide incentives for agricultural land use, however planning documents call for these policies to be revisited to ensure that agricultural uses persist once land values are reassessed. These programs include the Agriculture Use Dedication Program and the Non-Dedicated Agricultural Use Program. Director of Finance, Nancy Crawford, announced in a 2013 press release that "this program is part of our ongoing effort to encourage agricultural activities in this county, but we need to ensure that the owners who receive these generous benefits are actually engaged in active, continuous agriculture" (Crawford, 2013). According to the Hawaiʻi County Food Self Sufficiency Baseline Study (Melrose and Delparte, 2012) there are over 11,000 parcels on Hawaiʻi Island enrolled in programs that decrease the assessed value of lands claiming agricultural use; collectively these programs reduce County tax revenues by $34 million dollars annually.

Planning documents call for the State to prevent non-agricultural uses that could interfere with farming activities on important agricultural land and to narrow the land uses permissible for agriculture zoned lands (COH, 1992; COH, 2005). Currently, counties must follow the State Land Use law as it pertains to permissible activities on agricultural land; special uses of agricultural land may be allowed by the county if the parcel is under fifteen acres in size, while the State Land Use Commission must approve requests for uses on land greater than fifteen acres. Comments made in community plans indicate the desire to eliminate some allowable uses of agricultural land including "low-intensity non-agricultural uses and recreational uses such as golf courses" (COH, 1992). According to the Hawaiʻi County Code, Section 25-5-72, landowners may obtain special use permits for activities that include golf courses, lodges, meeting facilities, bed and breakfast establishments, and home occupations. Protections such as these may help keep land prices low, however changes to this code are unlikely to occur. Currently, land values are largely based on residential use given the relative ease of using agricultural land for primarily residential purposes.

Residential use of agricultural land is common across the state, which has prompted the outcry among residents in regards to gentlemen farmers and 'fake farms'. Community plans state that "gentlemen farmers use agricultural [land] dedications to minimize property taxes on their country estates; thus, other taxpayers heavily subsidize their extravagant lifestyles, while they produce nothing" (COH, 1992). In Hawaiʻi, where the land market is impacted by global demand from amenity migrants, second home owners, and tourism developers, as the cost of land is driven higher it becomes prohibitively expensive for individuals subsisting on agricultural incomes alone. The County of Hawaiʻi General Plan (2005) acknowledged the rising value of farmland, and the challenges it poses for farmers.

> Agricultural land values have risen beyond their value for agricultural purposes. The high cost of agricultural land reflects non-agricultural uses and values rather than the value that may be attributed to land if it were used as a resource for food and fiber production. Although there are many legitimate reasons for allowing zoning and use conversions of agricultural land, the increasing land values is one of the major problems that needs to be addressed to facilitate the expansion of agriculture. (COH, 2005)

Additionally, recommendations within the plan request that the County work to discourage speculative residential development on agricultural land (COH, 2005). Speculative development occurs both in rural areas and in peri-urban areas where competition for agricultural land is higher – such as Hilo, Waimea, and Kailua-Kona on Hawaiʻi Island. Where the inappropriate development of agricultural lands is occurring, community planning documents reiterate that it "threatens the community's unique character and rural lifestyle" (COH, 2015).

Access to Capital

Access to investment capital is necessary for anyone operating a business. Community planning initiatives identified challenges related to accessing capital as barriers to developing agricultural businesses (Kramer, 2000; COH, 1992; COH, 2012; Melrose and Delparte, 2012; COH, 2015). Businesses are reliant on banks and lending institutions to provide start-up capital, short term bridge loans, long-term loans, and lines of credit to expand into new initiatives or to cover costs during difficult times. The inability to access capital can prevent a farmer from

expanding their business, investing in equipment, maintaining and upgrading infrastructure, complying with food safety requirements, and expanding into value-added production.

Farmers in Hawaiʻi have a hard time accessing capital for a number of reasons. For leasehold farmers, the absence of long-term leases or their lack of sufficient collateral – some lending institutions require up to 150% collateral – can prevent them from working with lending institutions. Farmers seeking fee simple property, which is expensive in rural Hawaiʻi, must have adequate resources to make a down payment, and sufficient revenue from agricultural products to afford loan payments; oftentimes banks may want to see commitments from buyers to guarantee future product sales. Many banks and lending institutions view farming and other natural resource professions (i.e., forestry, ranching, fishing) as inherently risky business ventures, and therefore prefer to limit their investments in these industries (Melrose and Delparte, 2012). While there are a handful of banks in Hawaiʻi that will work with farmers, they require farmers to have adequate record-keeping and financial projections to help guarantee their investment, which many farmers lack. The void left by commercial banks is filled in part by government and private loan programs, however a "renewed commitment on behalf of local financial institutions to invest in local food production" would allow farmers to access the capital necessary to increase local food production (Melrose and Delparte, 2012; COH, 2015).

The Hawaiʻi County Food Self Sufficiency Baseline Study (Melrose and Delparte, 2012) identified access to capital as one of eleven key issues currently influencing Hawaiʻi Island's level of food self-reliance. The inability to access capital has become a more significant barrier as input costs continue to rise (COH, 2015); the USDA estimating that production costs have risen by 74.5% between 2002 and 2012 (NASS, 2012). Capital investment in agriculture is a challenge in several areas, including food safety upgrades and the production of meat, poultry, and dairy operations. The passage of the Food Safety Modernization Act in 2015 has significant cost implications for farmers and food producers; Melrose and Delparte (2012) identify two areas where capital investment is most needed – in packing facilities and developing the record keeping skills of individual producers. Some agricultural niche markets require more extensive capital investment than others, including livestock slaughter operations and dairies. Many of Hawaiʻi's existing meat and dairy operations were built decades ago and are in need of infrastructure and machinery upgrades. While the majority of Hawaiʻi's dairies, poultry

operations, and piggeries have closed down, those that remain, including two existing dairies and one start-up venture on Hawaiʻi Island, require new capital investment to remain operational (Melrose and Delparte, 2012).

Challenges pertaining to capital acquisition are compounded by the unfamiliarity of some farmers with available loan programs. Through employment at The Kohala Center as an agricultural business developer, it became evident that many farmers lack knowledge about the availability of loan and grant programs that provide assistance to farmers, or were not confident engaging with institutions that provided these services. This absence in knowledge was identified in the Plan for the Hilo Hāmākua Coast (Kramer, 2000) which called for local non-profits to investigate and disseminate information on existing loan programs, philanthropic investments, grant programs, and capital funds that provide low- or no-interest loans for agricultural businesses. Local non-profits and lending institutions (e.g., Small Business Administration, United States Department of Agriculture) have an important role to play in capacity building with local farmers and ranchers to increase awareness of loan and grant programs, take the steps needed to qualify, and in some instances work with them throughout the process to help ensure their success.

Access to Knowledge

> [A]n educated workforce is needed to address the entire spectrum of skill sets required to support the agricultural industry. Agriculture is a business, and marketing, sales, and financial acumen are equally as important as those of agronomy, horticulture, and animal husbandry. –Russell Kokubun, Chairperson, HDOA (In HDOL, 2013)

Access to agriculturally-related knowledge and skills was mentioned by several respondents as a barrier to business and industry development. Traditionally farmers learned their profession from their parents, as farming was a business that was passed down from generation to generation, but with a rising population of immigrant, young, and beginning farmers in Hawaiʻi, specialized training is crucial to facilitate business growth. Community planning processes repeatedly identified the need for educational services for both beginning and experienced farmers, including advanced agricultural training programs (Melrose and Delparte, 2013; COH, 2015), technical assistance and business incubation services (Kramer, 2000; COH,

2015), and support structures to facilitate marketing and agricultural competitiveness (COH, 1992; COH 2015).

Agricultural education and training programs are a key component in developing new farmers, supporting existing producers, and building community awareness about the value of local food and food self-reliance. The creation of formal and informal agricultural education programs was mentioned by the County's 2010 Agriculture Development Plan to help ensure that residents understand the value of local agricultural production and can knowledgably support the development of the industry, to facilitate the training of producers to profitably and sustainably meet consumer demand for locally-grown products (COH, 2012). The landscape of agricultural education initiatives in Hawaiʻi is broad from school garden programs, to university-level degree and continuing education programs, veteran-to-farmer initiatives, and private farmer and rancher development programs. While the University of Hawaiʻi and Hawaiʻi Community College systems offer agricultural degrees and continuing education courses, enrollment in formal education programs is low, and few participants are existing farmers (COH, 2012). For experienced farmers interested in additional training in specific skill areas (e.g., food safety, good agricultural practices, pest and disease control, specialty crop production), University and Extension programs do exist; additionally, non-profit and business centers offer technical assistance in small business development. Demand for these services appears to be growing, particularly among new and beginning farmers, however participation by experienced, commercial farmers in continuing education programs is low. To address the difficulties of reaching farmers, the County's 2010 Agriculture Development Plan recommends continued support of community education programs and commodity conferences, the latter of which are a draw for some commercial growers (COH, 2012).

In Hawaiʻi many farms are owned and operated by first and second generation immigrants. While their families may have been farming in their native countries, beginning a farm in Hawaiʻi poses new challenges (e.g., language, climate, access to markets). For many farmers in Hawaiʻi that speak English as a second language, or who are recent immigrants from overseas, it can be challenging to access agricultural information in their native languages (e.g., chemical use, disease management), however programs such as those at Pacific Gateway Center on Oʻahu are making progress in ethnic farming communities. New technologies and agricultural

innovation, critical components to the growth and expansion of the industry, will require higher levels of training and education, and consequently the state and county should prioritize supporting life-long learning opportunities in these areas (COH, 1992; HDOL, 2013). While organizations and university departments in Hawaiʻi have implemented programs that support immigrant farmers (e.g., UH-CTAHR, Pacific Gateway Center), funding for these initiatives is dependent on the availability of grant funds from federal and state sources. For example, the University of Hawaiʻi's Local and Immigrant Farmer Education (LIFE) program, operating between 2009 and 2014, provided new and existing farmers with educational workshops, industry events, field day demonstrations, on-farm diagnostics, and bilingual training materials. To improve outreach to immigrant farmers, LIFE created training materials – primarily for pesticide use, pest and disease management, and agricultural theft and vandalism – in several languages including Cambodian, Chinese, Ilocano, Korean, Lao, Tagalog, Thai, and Tongan; unfortunately these training materials did not cover more advanced business skill topics such as business planning, farm accounting, or marketing. Moreover, training programs need to be available in or near to farming communities so that farmers have easier access to the courses (Melrose and Delparte, 2012).

Farmers attending community planning initiatives identified marketing and competitiveness as two areas where farmers need additional support and training. Community plans (COH, 1992) captured both the opportunities afforded by the expansion of global markets and the drawbacks due to increased competition with imported products. An added challenge for Hawaiʻi's farmers in this area stems from Hawaiʻi's small population, limited market opportunities, and the state's isolation from overseas markets, which makes exporting agricultural products more costly (COH, 2005). In order to facilitate the development of local markets, planning initiatives emphasized the role of university and state offices in providing information to farmers and supporting farm programs that are focused on building the marketing skills of producers, including within existing Extension programs (COH, 2005; Melrose and Delparte, 2012). The County's 2010 Agriculture Development Plan echoed earlier initiatives, calling on the County to promote and support educational programs that provided the industry with the ability to "productively, profitably, and sustainably expand Hawaiʻi's agricultural systems" (COH, 2012); the importance of developing an online reference center for farmers was

listed as an action to achieve that goal, providing farmers with data concerning grant and loan funding, training programs, agricultural production, marketing, events, research, and additional resources (COH, 2012; HDOL, 2013). Additional County recommendations aimed at increasing the marketability of Hawaiʻi-grown products included the creation of agricultural cooperatives and the development of markets – specifically farmer's markets – for small-scale farmers and non-exportable products (COH, 1992).

Conclusion

The contemporary conversations concerning food self-reliance and the importance of diversified agriculture are in line with the discourse surrounding food self-sufficiency that began in 1978 with the revision to the State constitution to emphasize the importance of agriculture in Hawaiʻi. This discourse emphasizes the desire to develop a robust diversified agricultural economy in the Hawaiian Islands for both local consumption and export economies. The desire to become food self-sufficient exists amidst mounting challenges to viable agricultural production and livelihood generation, and statistics which indicate the overall decreasing importance of agriculture to the state's economy. The discourse, and the agricultural and land management policies following from it, largely ignores the fact that the globalization of agro-food systems has virtually eliminated the competitive advantages that Hawaiʻi's agricultural products once enjoyed (Suryanata, 2002; Suryanata and Lowry, 2016). The social and economic function of Hawaiʻi's rural areas continues to change, allowing for more consumptive uses of the landscape, such as residences, recreation, agri-tourism, conservation, and other non-farm uses. Hawaiʻi's agrarian transformation from plantation to diversified agriculture has opened the door for competing interests within Hawaiʻi's rural places, and is re-creating agriculture's role amidst a new diversified landscape.

This chapter reviewed the evolution of land tenure and agriculture in Hawaiʻi from Native Hawaiian agricultural use, to plantation agriculture, and ultimately to the diversified agricultural landscapes of today. The extent and rapidity of changes in land relations and land use in Hawaiʻi has been extreme due to the sudden arrival and departure, 150 years later, of plantation agriculture that dominated the life and land across much of Hawaiʻi. It has only been

20 years since the closure of the sugar companies along Hawaiʻi Island's Hāmākua Coast, a timeline too short to gauge the success of diversified agriculture. However, insights gained from twenty plus years of state and county planning initiatives, trends in Hawaiʻi's land market, the variable success rate of Hawaiʻi's farms, and the increasing demand for local food, provide hints at the state's uncertain future in agriculture. This chapter sets the stage for taking a more in-depth look at the local political economic realities of agriculture in East Hawaiʻi, where research for this dissertation was conducted. Combining reflections from political economy and rural change literatures with ethnographic research, the next chapter explores the manifestation of two government sponsored agricultural projects in East Hawaiʻi.

CHAPTER 3. CASE STUDIES: AGRICULTURAL PROJECTS IN EAST HAWAIʻI

Introduction

The agricultural land in the field site is largely owned and managed by institutions, including the State, the County of Hawaiʻi, and Kamehameha Schools. This chapter explores two case studies in East Hawaiʻi: the State-initiated Hāmākua Agricultural Cooperative and the start-up Kapulena Agricultural Park, under development by the County of Hawaiʻi at the time the research was conducted. Land managers in the study area have implemented agricultural projects that are in accordance with their institutions' values to support diversified agriculture in Hawaiʻi. These projects include agricultural cooperatives and parks, private lease arrangements for ranching and farming, and agricultural infrastructure projects. The majority of State- and County-sponsored projects attract little attention from the broader community, as they are negotiated with individual agricultural operations and landowners, however when projects are designed to support a broader population base or are community-focused initiatives, they open the door for input from diverse stakeholders.

The two case studies chosen for this study, the Hāmākua Agricultural Cooperative (HAC) and the Kapulena Agricultural Park (KAP), were in transition between 2010 and 2012, and therefore provided an ideal opportunity to explore institutionally-driven agrarian projects at different phases in their development. The initial driving force behind the creation of both HAC and KAP was the government's desire to support an agricultural community in Hāmākua by making land available to farmers at an affordable lease rate; consequently, both processes were largely top-down initiatives whose success relied on local community buy-in and engagement. The Hāmākua Agricultural Cooperative was developed by the State for the benefit of the displaced sugar workers who lost their source of employment when Hāmākua Sugar Company closed in 1994. The Kapulena Agricultural Park was conceived of by the County of Hawaiʻi in 2009 as a way to promote agricultural development near the communities of Kapulena and Honokaʻa on land that they acquired from Hāmākua Sugar Company. KAP was initially implemented alongside the sale of another county-owned property located down the coast near the community of Paʻauilo, which generated negative input from the community; both KAP and

the Paʻauilo land sale will be discussed in this chapter as they reflect simultaneous County initiatives that highlight the challenges of promoting and practicing agriculture in Hawaiʻi. The case study examinations juxtapose the institutional histories of the projects and their challenges, including their underlying assumptions, guiding values, and their decision-making processes, with the bottom-up values, visions, and practices of community members engaged in the practice of agriculture within these projects.

By focusing on institutional agricultural projects I was hoping to observe the disconnect between agrarian rhetoric and the realities of agriculture in practice. The Hāmākua Agriculture Coop, and to a lesser extent the Kapulena Agricultural Park, were going through challenging periods in their development during the research period. The HAC in particular was placed in default status by the Hawaiʻi Department of Agriculture (HDOA) and was working to re-engage members and build trust with the State DOA. These periods of unrest provided a unique opportunity to observe the relationships between government, organizations, and the community. Unfortunately the extent of the agricultural activities within HAC and KAP at the time of this research was relatively minimal, with the majority of Hawaiʻi Island's commercial growers operating outside of these initiatives. While this limited the observation of commercial activities within the case study sites, my involvement in the community provided opportunities to interact with larger growers across the island. As a researcher, community member, and employee of an agriculturally-focused non-profit, I was closely involved in both HAC and KAP as a mediator, farmer, note-taker, and technical assistance provider. The ability to perform participatory research while wearing multiple hats gave me the opportunity to broadly explore the realities of diverse farming groups both within and external to the case study initiatives, including amenity migrants, gentlemen farmers, absentee landowners, hobby farmers, subsistence farmers, and commercial and quasi-commercial producers.

Case Studies: Diversified Agricultural Initiatives

Participatory observation of Hāmākua's land-leasing cooperative, the only land-leasing cooperative in the U.S., revealed key challenges and opportunities in developing a diversified agricultural economy. Preliminary findings indicate that the State and County face several challenges in managing agricultural lands and supporting producers in East Hawaiʻi. At an

institutional level, they appear to lack sufficient financial and human capacity to adequately administer leases to farmers and provide support to farming communities in the areas of education and training, and infrastructure development (e.g., post-harvest processing). While the State and County assist community-based organizations (e.g., non-profits, cooperatives) that provide infrastructure and technical assistance to producers, the level of financial support they can offer these groups is limited and often dependent upon the motivations of elected officials.

In both case studies the devolution of land management responsibilities to local-level groups highlights the challenges inherent in community-based management systems. The Hawaiʻi Department of Agriculture relies upon the Hāmākua Agricultural Cooperative's Board of Directors to manage its lands, while the County was exploring the feasibility of having community groups assist in the management of KAP leases. For HAC, misunderstandings between the Coop and the State, and disagreements among HAC members, have weakened the Coop's ability to honor their responsibilities to the State and effectively manage lessees. Moreover, HAC's primary responsibility of sub-leasing land and paying their master lease to the HDOA, conflicts with the Coop's interest in finding members who are strongly committed to agriculture; consequently they often open their doors to individuals who will pay their lease but who may or may not be committed to agricultural production.

The Hāmākua Agricultural Coop and Kapulena Agricultural Park were government-led processes with intentions to make land available at an affordable rate to area farmers, however neither project was responding to a real community-based demand access to affordable land and water for farming. While the Hāmākua Agricultural Coop was formed to provide land – potential livelihoods in agriculture – to displaced sugar workers, many of the workers were not involved in small-scale commercial agriculture during their employment for the sugar companies. Likewise, some viewed the Kapulena Agricultural Park's establishment by Hawaiʻi County Mayor Kenoi as a mitigation measure for the proposed sale of County-owned agricultural land in the nearby community of Paʻauilo. While these agricultural initiatives appear to be the products of the values and visions for an agrarian-oriented economy and landscape along the Hāmākua Coast, their creation did result in the engagement of local farmers and ranchers. However the definition of *farmer* might need to be re-conceptualized to account for the diversity of lessees participating in the initiatives. From the community-level it is evident that contemporary diversified

agricultural efforts in Hāmākua are more aptly categorized as aligned with hobby or subsistence-oriented goals than with commercial-scale endeavors. The increasing presence of amenity migrants and new types of farmers in Hāmākua, and throughout Hawaiʻi's rural spaces, is challenging traditional definitions of 'farmers' and 'agriculture,' with many farmers having off-farm employment or relying on spousal income and employment benefits. The question – 'where are the farmers?' – is made repeatedly at local agricultural meetings, capturing the disconnect between the common vision for agriculture in Hāmākua, the local political-economic reality of farming in Hawaiʻi, and the rise of contemporary rural communities defined by diverse livelihoods and lifestyles. Recurring themes among politicians, planners, farmers, and ranchers at local agricultural meetings is the need to 'grow farmers' to occupy Hawaiʻi's agricultural lands, while simultaneously increasing demand for Hāmākua's agricultural products. 'Growing farmers' might not be the only answer; perhaps what is needed is to expand our idea about what types of activities define a farmer to allow others to occupy Hāmākua's rural landscape.

While many farmers in the area struggle to make a profitable living in agriculture, it is difficult to determine the extent to which their challenges stem from the limited support they receive from land owners and government programs; result from their location within an increasingly globalized food economy; or are due to their level of dedication to their profession. While the opportunity for farmers to work collectively through cooperatives or similar organizations may enhance the success of small farm businesses and prove essential to the development of diversified agriculture in Hawaiʻi, these case studies illustrate the challenges faced by local government in establishing agricultural initiatives in post-plantation communities. Moreover, as farmers in Hawaiʻi continue to face challenges related to agricultural production and competition in local markets, finding enough commercial growers to occupy vacant agricultural land, including those within the HAC and KAP, will remain a challenge.

Case Study 1: The Hāmākua Agricultural Cooperative

The Hāmākua Agricultural Cooperative, formerly known as the Honokaʻa Farmer's Cooperative and the North Hilo/Hāmākua Agricultural Cooperative, was formed in 1994 in response to the closure of the area's sugar plantation. The original name of the Coop was

changed to include North Hilo due to complaints from former C. Brewer sugar workers in the Hilo area who desired access to affordable land. In the mid-1990s the only available land for sale was in parcels ranging from 300 to 500 acres or more in size, which were prohibitively expensive for former sugar workers. Yoshito Takamine, former Honokaʻa Sugar Company worker and State Representative, helped start the Coop and served as president of the organization for several years after inception, working with the State to identify suitable lands for former Hāmākua Sugar workers.

> For many families on the coast … the cooperative is their hope for the future. We have to use this crisis as an opportunity. …This is the first time land could become available for anything except sugar plantations. –Yoshito Takamine, former HAC President (In Bacon, 1995)

In 1994 when the plantation officially closed, the unemployment rate in Hāmākua District reached 10.3% and was as high as 13% in other Hawaiʻi Island districts (Choo, 2005). Local journalists writing at the time of the industry closure spoke about the challenges and opportunities facing residents and rural communities.

> This is not a good time in Hawaiʻi to lose a job. The hotels and resorts, which replaced agriculture as an economic engine in the last two decades, are cutting back as tourists look for newer and cheaper destinations. … Yet the end of the plantation system also brings the chance for a new kind of agriculture, and the possibility of change for those who once chopped cane … New cooperatives and community organizations are springing up, hoping to transform workers who once worked the land as wage laborers into farmers with a stake in the land itself. (Bacon, 1995)

The majority of sugarcane workers adjusted by seeking employment in industries such as tourism and construction, oftentimes with employers located in the larger communities of Hilo and Kailua-Kona. A handful of sugarcane workers joined the Hāmākua Agricultural Coop with the desire to practice agriculture and earn a living farming. A membership director for the Coop, and wife of a mill foreman, acknowledges the opportunity the Company's closure afforded to local residents to build new livelihoods in the community, and the importance of doing so for their children.

> We have to save our community. … [W]e will never go back to the days of sugar [but] we can become something more than what we were. We worked the land all those years for the company. Maybe now we can work it for ourselves. … [I]f we

> don't [engage in agriculture], there will be nothing here for our children. …We need to build something that will give them a reason to stay. –Spouse of a former sugarcane worker and current Coop member. (In Bacon, 1995)

Some former sugarcane workers took the opportunity to explore multiple livelihood strategies, often balancing them against each other as the opportunity for revenue ebbed and flowed.

> Local people are very pragmatic. Instead of driving a truck full of sugar cane, we now drive a bus full of tourists….We've adjusted. We've moved on. –Former sugarcane worker and current Coop member (In Choo, 2005)

> Right now, [Hāmākua] is largely a bedroom community. All those people who lost their plantation jobs are now driving to Kona and the resort areas. … There are people doing small farms and running various small businesses, but most of them also have other tourism jobs in Kona or Hilo. –Realtor (In Choo, 2005)

In 1998 the Hāmākua Agricultural Cooperative, the Hawaiʻi Department of Land and Natural Resources (DLNR), and the Hawaiʻi Department of Agriculture (HDOA), signed the master lease for the HAC land, with a total of 521 acres belong to the Hawaiʻi DLNR and 191 acres belong to HDOA; currently all DLNR lands are being managed by the HDOA. The master lease was comprised of ten 35-year master leases which were divided into 108 smaller parcels by the Coop; HAC was then tasked to create a board of directors and sublease the land to Hawaiʻi residents, with a preference towards displaced sugar workers.

As of 2015 there were approximately 60 members in the Coop, holding leases that expire in 2033. A total of 14 members are displaced sugar workers, with the remainder of the membership comprised of new and beginning farmers, and newcomers to Hawaiʻi. Coop members are engaged in agriculture in diverse ways, including as commercial producers, hobby farmers, and subsistence producers. It was estimated by HAC's general manager in 2016 that approximately 27 members, almost 50% of Coop members, are not engaged in traditional commercial-scale production, where agricultural revenues comprise the mainstay of their income (pers. comm., 2016). The majority of the farms in the Coop are small family-run initiatives that produce a variety of diversified fruit and vegetable crops, and many lack sufficient capital to mechanize and hire non-family labor.

The Coop, by way of the State, provides minimal infrastructure to its members. While the lands lack infrastructure and potable water, HAC members have irrigation water available for use

through the Lower Hāmākua Ditch Irrigation System (LHDIS), known locally as the Honokaʻa-Paʻauilo Irrigation System (HPIS). The LHDIS is one of eleven state owned irrigation systems in Hawaiʻi. The HPIS is managed by the Hawaiʻi Department of Agriculture and consists of 26 miles of ditches, tunnels, flumes, service laterals, and five reservoirs. The State DOA assumed responsibility for the LHDIS upon the closure of Hāmākua Sugar Company; the system is currently managed by the Agricultural Resource Management Division of the HDOA, including the reservoirs at Honokaia and Paʻauilo, which supply water to HAC lands. The State assesses service charges and monthly water rates to users, with agricultural and pasture rates of $0.56 and $0.32 per 1,000 gallons, respectively. According to an assessment performed in 2012 by the Office of Planning and the HDOA, the LHDIS: services 6,600 acres, including 150 farms on approximately 800 acres of 'agricultural land' and the remaining acreage in 'pastureland', as classified by the HDOA; and provides 150,000 gallons per day to farmers and ranchers to support the production of crops that include papaya, coffee, lettuce, watermelon, tomatoes, taro, orchids, vanilla, dairy products, and grass-fed beef (Hawaiʻi Office of Planning, 2012). The State provides the Coop with an administrative office in Paauhau, a plantation camp located east of Honokaʻa; however individual leaseholders are not provided with structures on their farm lots or centralized processing facilities. Individual members have erected storage and shade structures on their land and a small group of Coop members lease a wash-pack facility in Honokaʻa.

The State Department of Agriculture's application process for Coop sub-lessees is similar to the process they have for agricultural park lessees statewide. The application process can take anywhere from three to five months, and involves the completion of an application package, package review by an HDOA representative on Hawaiʻi Island and by HDOA staff in Honolulu, sublease preparation, payment of fees by the tenant, and final approval granted by the board of Agricultural in Honolulu. A tenant is not supposed to begin farming until the entire process is complete, however in some instances a tenant will begin farming as soon as the sublease is drawn, at the discretion of HAC's Board of Directors. Eligibility criteria[5] for Coop membership

[5] Hāmākua Agricultural Coop's abbreviated eligibility criteria include (1) island residency status for 3 plus years, (2) 'bona fide' farmer status defined as having two years' experience as a full-time farmer or four years' experience as a part time farmer (verified by tax returns), (3) verification of agricultural background via two letters of reference, (4) a completed business plan, (5) complete tax returns, credit report, and tax clearance, (6) a willingness to pay membership and water fees, and (7) a willingness to carry liability insurance.

is strict and based upon the rules of the State Department of Agriculture. When potential applicants approach HAC's general manager they are presented with a series of questions to gauge their membership eligibility. The list of eligibility-related questions includes: willingness to pay membership dues and water costs, restrictions on Hawaiʻi residency, proof of farming experience, creation of a business plan and financial projections, and willingness to cooperative with HAC members. While many members are able to meet the eligibility requirements, their ability to do so varies depending on their educational background, English language proficiency, and prior experience in agriculture (i.e., if they have submitted tax returns reflecting agricultural income).

When the Coop was created in 1998 the anticipated outcome was that devolution of responsibility to manage the HDOA and DLNR lands to a community-based group would make it administratively easier on the State to manage these lands and that the newly formed entity would be successfully able to manage the Coop. As with many state-sponsored projects, outcomes are often varied and unexpected. The Coop has encountered difficulties in administering the land for the State and experienced challenges common to community-based natural resource management systems. Likewise, farmers within the Coop have had a hard time developing successful businesses due to a multitude of reasons, including their lack of sufficient agricultural business skills, and the decimation of crops due to plant diseases and intermittent water availability.

> Ring spot virus wiped out Hāmākua's burgeoning papaya industry in the late 1990s, and the consistent failure of the nearly century-old Hāmākua [Irrigation] Ditch caused numerous crop collapses and eventually led to the near extinction of farming below the irrigation system. Also, a lack of agricultural and business education doomed many former sugar-workers-turned-farmers to failure before they sowed their first seeds. (Choo, 2005)

> There were great expectations that we would see a booming aquaculture industry, papaya, orchids, vegetable crops, and cacao. … Some of the existing diversified ag businesses took [the closing of the plantation] as an opportunity. For instance, the ranching community immediately moved into former sugar lands and has established a foothold there. However, it hasn't been a smooth transition for others. A lot of the new farmers were former sugar workers didn't have the skills to fully diversify. –Diane Ley, Former Deputy Director of the County of Hawaiʻi's Department of Research and Development (In Choo, 2005)

The creation of the Coop was both a top-down and bottom-up initiative, with the State recognizing the need to support an agricultural community with severe unemployment, and the community expressing desire for '1,000 points of green,' signifying a landscape comprised of small family farms throughout rural Hāmākua (COH, 2006). It is uncertain however to what extent those individuals expressing the desire for small family farms were the same ones who received land through the Coop; individuals who take part in community planning initiatives are not necessarily those farming the land. While some of the historical challenges have been addressed, such as the repair of the irrigation system and the advent of genetically modified papaya in 1999, Coop members continue to face obstacles in developing viable farms.

This research followed the Cooperative through a period of important change for the organization. The HDOA began to question the extent to which Coop members were actively farming on HAC land. Ultimately the HDOA placed HAC in default status between 2009 and 2014 due to the Coop's failure to pay the Master Lease and maintain an eligible membership. Moreover, internal disagreements between Coop members caused divisions within the membership, causing famers to lose trust in the organization and disengage from Coop activities. Observation of these two processes – default and recovery, and member re-engagement – revealed several challenges and opportunities for farmers and agricultural organizations involved in transitioning land from plantation to diversified agriculture.

Default and Recovery: 2009-2014

In June 2009 the HDOA placed the Coop in default status for three reasons: lease payment delinquency, a lawsuit that relinquished the organization's bond fund, and the Coop's failure seek HDOA approval for new members or collect business plans from applicants. Furthermore, the HDOA questioned the level of farming taking place on Coop land, given the HDOA requirement that tenants be 'bona fide' farmers engaged in agricultural production. One year later, in 2010, the Coop responded by crafting an economic hardship letter to the HDOA asking them for assistance in addressing their default status, and to help the organization achieve greater success overall. The HDOA, under the guidance of Chairperson Scott Enright, approved

a three year *Agreement and Plan for Economic Recovery* with multiple benchmarks[6], including requirements to: achieve 95% occupancy by qualified individuals with all parcels in production; seek approval for or remove all illegal, unpermitted, or unauthorized structures; become current on all dues owed to the State; conduct monthly inspections of farm lots; and assist the HDOA in collecting irrigation payments from tenants.

The Coop was able to survive for a long period of time without abiding by the HDOA rules for several reasons. First, one of the primary concerns reiterated by the Coop's General Manager was that they were not aware of all of the HDOA rules surrounding member eligibility, in part due to the failure of the HDOA to enforce its rules. A letter from the Coop board to the general membership in 2010 discussed how the board was surprised by some of the HDOA requirements for the Coop, including the need for members to plant out their farm lots.

> [I]n June of 2009 the DOA began enforcing all of the rules and requirements under the Master Lease. Some of these requirements took us by surprise as they had never been enforced before. One thing is very clear, the DOA would not have taken this action if we were *all FARMING and PAYING OUR LEASE* (*emphasis retained*). –General Manager, Hāmākua Ag Coop (In a letter to the general membership in 2010)

While the Coop was told that members needed to qualify under the definition of a 'bona fide farmer' as stated in the State's legislative statutes, the HDOA did not explain or enforce the rule, nor did the Coop do statutory research to determine what the definition was or work to ensure that new members were qualified. Second, the Coop had not defaulted on a payment for several years, placing them in good graces with local inspectors who would turn their head when

[6] The Economic Recovery Plan approved by the HDOA for the Hāmākua Coop consisted of eight actions the Coop must complete in three years. (1) The Coop must achieve 95% occupancy of the leased premises to 'qualified' individuals or entities by the end of the third twelve month period. (2) A total of 100% of the subleased parcels shall be utilized (visible farming/agricultural activity or land cleared and ready to plant) by the end of the third twelve month period. (3) There shall be no illegal or unpermitted/unauthorized structures on any subleased parcel. (4) The Coop shall not be delinquent on any fees or lease rent due, except for the Performance Bond requirements. (5) The Coop shall submit monthly reports containing the following: report any changes, updates, or cancellations of subleased parcels; provide information on any planned activities or marketing plan to promote the Coop and vacant parcels; provide copies of monthly inspection reports of subleased parcels with a minimum of 18 parcels to be inspected monthly. (6) The Coop shall submit quarterly financial plan updates. (7) The Coop shall assist the HDOA in achieving a delinquency rate of 20% or less of total billings of irrigation accounts by the end of the first twelve month period of the plan. (8) The Coop shall assist the HDOA in obtaining repayment plan agreements from all delinquent irrigation account holders within thirty days of contact from the Honokaʻa-Paʻauilo Irrigation District Supervisor.

members were not in full compliance with the regulations. For example, a Coop member stated that the organization's on-time payment status earned the Coop "a lot of leeway and a lot of slack and freedom in our governance and what we did" (Coop member, 2010).

> The land inspector would come out and say, 'what's this?' A fence. 'There's not supposed to be cows in there.' Ok. They're paying their lease. This went on for years. –Coop member (In a Coop meeting, 2010)

The Coop member went on to explain at a Coop meeting in 2010 that when the organization decided to make a payment on a lawsuit to a former Coop member and default on a lease payment to the state, things started to go downhill for the Coop; soon the "DOA lost their confidence and then [the Coop] lost [HDOA's] cooperation" (Coop member, 2010). Additionally, a lawsuit between Coop members caused severe problems for the Coop, both financially and socially. Members disengaged from the Coop and spoke of the 'grumbles', a period of time surrounding the lawsuit when members' confidence in the organization diminished and their engagement waned.

At subsequent annual meetings following the implementation of the Economic Recovery Plan, the General Manager and Coop President addressed requirements of the Plan and the progress made by the Coop towards the HDOA's benchmarks. At an annual meeting in 2013 the General Manager discussed the requirement that members must be actively farming by June 2014, or their leases would be revoked. She also emphasized the assistance the Coop's administrative staff could provide to members to help them qualify, after the fact, for their leases with the HDOA, as many members received leases without going through a formal application process with the HDOA.

> Our lands need to be in production. That's our cut off [June 2014]. I'm more than willing to help you do whatever you need to do to get qualified. We are getting really good at these packages and can knock it out in a couple of hours. –General Manager, HAC (In an HAC Annual Meeting, 2013)

The Chairperson of the HDOA, who was in attendance at the 2013 annual meeting, reiterated the need for the land to be in agriculture, or fallow and ready to be planted.

> It has to be actively in agriculture. And I think we can agree that a lot of the land that the Coop has hasn't been actively in agriculture. There is room in there, there is leeway in interpretation. And the individual that is going to be doing the interpreting is me. And I'm a friend, so it's not like it's going to be a harsh

> interpretation. But we need it to be in agriculture. –Scott Enright, Chairperson, HDOA (In an HAC Annual Meeting, 2013)

The Economic Recovery Plan included an orchard incentive program, announced in 2013 at the annual meeting. The intention behind the orchard incentive program was to provide discounts to new members receiving marginal land and to accelerate the leasing of any remaining vacant Coop lots. Because the majority of the Hāmākua Coast is located on the volcanic shoulders of Mauna Kea, the land is sloping, rocky, and can contain gulches, making it less suitable for row crops.

Things began to turn around approximately three years after the Coop implemented the recovery plan. At the 2014 annual meeting the Coop President announced, "this is our 20th anniversary, so you can all give yourselves a big hand, we all made it 20 years and we're still here," hinting at the challenges the organization had recently experienced. In her opening speech the General Manager reiterated the Coop's recent struggles and was optimistic about the organization's future.

> Back in the 1999 era, we had lots of members, we had all our lots leased and hardly anybody farming. Today we still have some of our land to lease but 95% of our members are doing some kind of farming on their land which is amazing and wonderful and a great success. In 2009, after lots of internal strife and lots of struggles, we were in danger of losing our leases. The DOA was done with us and ready to shut us down. A group of members stepped forward … and said, 'This Coop is worth saving, let's do this.' And so we got to work and we saved it. …The DOA is happy with us today. … We've had to get rid of some of our members that weren't paying their leases, some members that weren't farming. We have a really solid core right now: you guys. Everybody here farms, I'm so happy! –General Manager, Hāmākua Ag Coop (In an HAC annual meeting, 2014)

One year later, in 2015, HAC's Board of Directors sent an annual report to its members discussing the '2015 Recovery', highlighting that for the first time in the Coop's history the organization would have 92% of their lands subleased, with 80% of the members approved by the HDOA and the balance in the process of being approved or transferring their sub-lease to an approved member. The board announced that the majority of the Coop members were engaged actively in farming (87%) or beginning to farm (10%), a significant improvement from 2009 when the Coop was placed in default.

The default period that the Coop went through was a trying period for the organization. The challenges faced by the HAC in the period between 2009-2014 were due, in part, to the system put in place by prior boards which were either not aware of the HDOA rules on member eligibility, or choose not enforce the requirements. The Coop was established as a land leasing cooperative with the primary responsibilities of (1) sub-leasing land to community members interested in farming and (2) paying their master lease to the state. Therefore, since the Coop's inception, boards have focused primarily on leasing all of the parcels in the master lease and focused less on what the lessees were doing on their land. While the main responsibility of the Coop has not changed, and the organization still must work to ensure that their lands are fully leased, the organization is hopeful that the lessons learned by the Coop during the default period and the subsequent recovery will allow future General Managers and boards to operate the organization under full realization of the rules, and consequently acquire members who are more dedicated to practicing agriculture.

Cooperatives by nature are defined by their membership. Typically there is no cooperative entity that farmers can point to and say 'that is the cooperative'; a cooperative is its members. Consequently, the more members engage in a cooperative, the more successful the group will become. The Hāmākua Agricultural Cooperative, as a land-leasing cooperative, required the involvement of its farmers as board members to ensure that there was a committed group of individuals working to lease all Coop land parcels. Initially Coop members participated in growing groups, for example for papaya, aggregating products to access larger markets. Unfortunately, challenges with the Hāmākua Ditch and inconsistent water availability, led many members to leave the Coop in search of more secure employment causing participation in production groups to wane. Each new board of directors that comes into power brings with it different configurations in member involvement. Boards have implemented unique initiatives designed to provide opportunities for members, some of which have been more successful than others (e.g., collective aloe production, apple banana growing groups). When the 2009 board of directors was faced with default status, the importance of member cooperation and engagement with the organization became clear, and ultimately worked to save the Cooperative.

The Coop's placement in default status led the board of directors to reach out to the Northwest Cooperative Development Center (NWCDC), a non-profit organization based in

Washington State dedicated to developing the capacity of cooperatives. The Coop decided they wanted to pursue strategies that would reunite its membership, strengthen their position in the community, and repair their relationship with the Hawaiʻi Department of Agriculture. In December 2009 the board hired NWCDC to engage its membership in an Appreciative Inquiry (AI), an organizational development process used to examine the positive aspects of a group to build cooperative capacity (Barrett and Fry, 2005). In a 2009 letter to member farmers, the board explained their decision to embark on a "unique grassroots effort … to strengthen cooperation and trust within our organization." The board used AI language in an attempt to encourage participation amongst the members.

> Imagine if your farm was everything you wanted it to be. Imagine if the Coop was everything it could be. Imagine us all working cooperatively together to create a prosperous and sustainable farming community. This is our goal. –HAC Board of Directors (In a letter to Coop members, 2009)

The Appreciative Inquiry process "advocates collective inquiry into the best of what is in order to imagine what could be, followed by collective design of a desired future state that is compelling and, thus, does not require the use of incentives, coercion, or persuasion for planned change to occur" (Bushe, 2013). The process is guided by a 'change agenda,' a goal identified by an organization's leadership. The change agenda adopted by the HAC Board of Directors was – working cooperatively to build a prosperous and sustainable farming community – with the themes of 'cooperation,' 'farming,' 'sustainability,' and 'trust' as key elements required to achieve this agenda. The AI process required members to interview each other, asking questions centered on the four themes that would allow the Coop to achieve its agenda. The board reviews all interview notes with NWCDC staff and identifies actions that can be taken by Coop leadership to advance the organization towards its goals.

In January 2010 the Coop invited the membership to attend a meeting with NWCDC staff where they would learn the AI process, and be trained to interview fellow coop members. Approximately 10 members attended the meeting where they received training in the interview process and decided which Coop members they would interview. With only 10 members participating in the training session, there was a need for the Coop General Manager and myself to volunteer to interview the remaining members. Interviews were held between February and

March 2010. The interview questions encouraged members to (1) remember experiences where they were engaged or excited about agriculture and the Coop; (2) describe how they have been influenced by past farming activities; and (3) discuss their goals and dreams for the Coop.

The NWCDC asked the HAC's Board of Directors to hold a visioning meeting prior to the AI process for the board to discuss the direction the Coop wanted to go, and what it needed to do to get there. At this meeting the board listed several goals they would like to see accomplished within one year, including having: the Coop land fully leased; a waiting list for membership; a membership that would be actively farming and forming cooperative relationships (e.g., growing, processing, and marketing groups); 90% of the lessees paying their leases within 90 days; an excellent working relationship with the HDOA; a post-production facility; a Coop business and strategic plan completed with the assistance of NWCDC; technical assistance providers to assist the Coop with grants and equipment loans; the professionalization of the Coop's image through a brochure and website; increased community appreciation and respect for the Coop; and the grandfathering in of all current Coop members – by the HDOA – so that they would be excused from completing a lengthy HDOA application package. The Coop identified several action steps needed to meet these goals, including finding more qualified farmers for the land and actively enforcing production rules.

The AI process culminated in a final gathering that was held in March 2010 at the local labor union hall. Members attending this meeting worked together to develop a shared mission statement for the Coop: *the Coop is a community of farmers working together to support each other and the island community by successfully producing fine quality, sustainably produced, Hāmākua-grown agricultural products.* The Coop community shared aloud stories that were gathered through interviews with fellow members, and began the action planning process that would lead the group towards a more stable cooperative organization. Member responses to questions concerning 'cooperation' and 'trust' were some of the most compelling; interviewees also shared member reactions to questions concerning farming and wishes for the future of the Coop.

Cooperation

What makes cooperation possible: Common ground, interests, and goals. Listening. Working for the betterment of the group rather than yourself. Considering all perspectives even if you don't agree. It's a choice. Good intentions. Flexibility. Tolerance. Respect. Getting to know each other better. You have to trust one another … it's what a Coop should be. Cooperation depends on having a shared view of what the Coop is and this has been lacking since the inception of it. Finding common ground makes cooperation possible. When you embrace diversity you find you're not that diverse. People must want to cooperate and work for the betterment of all, not the individual. Need desire to participate in the process in civil constructive way. Seems like everyone is on their own little island; people don't always wave or stop to talk; we need to unite the farmers.

What inspires cooperation: Integrity. Empathy. Strength in diversity. Building relationships. Putting others first. Being involved. Long term devotion and dedication to a cause. Being deeply interested in everyone's success and benefit. Making an effort to reach out and actually hear. Acknowledging other's opinions. Being flexible, open-minded, and resilient. Putting self-interest aside to work for the common good. Build others up, not put them down. Commitment to a process independent of one's own self-interest. You have to have an enlightened approach with your fellow humans. Don't try to show off or dominate, but try to elicit and stimulate people's potentials. United we stand, divided we fall. One cooperative relationship spawned others. Joint goal of making the land productive.

Trust

What makes trust possible: Loyalty and integrity. Honesty. Mutual respect. Good intentions. Mutual goals. Playing fair. Keeping your word. Being reliable. Similar values. Consistency. Knowing the person. Honoring commitments. Not taking advantage. Goes both ways. Being there for each other. Being grateful, not greedy.

What can I do to foster trust: Be honest. Communicate. Respect people. Be transparent. Be open and understanding. Reach out. Participate, be an active member. Keep my word. Stay informed. Contribute to the whole. Be trustworthy. Refrain from gossip, rumors, and false information. Be consistent.

Farming

Why we farm and what we love about farming: Love of the land. Being outside. Hands in the dirt. Self-sufficiency. Being your own boss. Growing food. Lifestyle. Hard work. The independence. Connection to the land. Stewardship of the land. Producing healthy food for myself, friends, family, and the community.

What we bring to the farming community: Dedication. Willingness to share knowledge. Enthusiasm. Belief in the future of diversified agriculture. Respect for farmers. Experience. Willingness to help others. Integrity. New model for diversified agriculture in Hāmākua. Good work ethic. Ability to share what we grow with others.

Wisdom we would share: Do your homework: get information and talk to other farmers! Experiment – learn from your experiences. Have a business plan. Start small. Be in it for the long haul. Be realistic – be honest with yourself. Be prepared to work hard. Find your unique niche.

Wishes for the Future of the Coop

Wishes for the Coop: Start fresh, with a new vision. Everyone works together and helps each other. Active and engaged membership. Everyone pays their leases. Make farming fun. Everyone is successful. Genuine support from the HDOA. More social activities. Live on land. Coop provides cooperative processing and marketing, bulk purchasing, shared equipment, and education. Everybody would pay their leases. Everybody would be committed to the survival of the Coop. Want those who don't have the interest of the Coop at heart to be OUT of the Coop. Turn into a real cooperative Coop. The Coop would find people to provide labor and sales experience. That everyone interested in farming was successful. All the land in the Coop is producing. People are working together to sell cooperatively. We are developing a consistent product by working in numbers. Making money is about economies of scale, not biodiversity. Eventually help famers with sales and market. Utilize the economies of scale in terms of purchasing as well as work. Look into how to form a true Coop.

The AI process was effective in re-engaging the HAC membership and reconciling the distrust and alienation of some members that arose during 'the grumbles'. The responses generated by Coop members were not contradictory to each other or contentious; members seemed to agree on definitions of trust and cooperation, and how these elements are important to the strength of a working cooperative. While some of the same members that were disengaged from the Coop during the lawsuit (2016-2010) remain somewhat isolated from the day-to-day operations of the Coop, historically these individuals have not volunteered to participate on the board of directors or in organizational administration.

> We still don't have as much member participation in the running of the Coop (committees, etc.) but most farmers are busy and just want to farm. –HAC General Manager (pers. comm., 2016)

Coop management feels there has been considerable progress made amongst the membership to forge more meaningful relationships with each other and the board. Moreover, the General Manager stated that "honesty and transparency have been the key words for the board" following the AI process (2016).

> I think there is a lot more cooperation between the members now than there used to be. They are helping each other, asking and receiving advice, etc. Any time you put two or more members in a room together it's only a matter of minutes before they are asking questions and sharing knowledge. … The board has definitely been functioning on the 'betterment of the group' mentality. –General Manager, HAC (pers. comm., 2016)

The most productive outcome of the organizational development process was evident in the response of the board of directors to member desires and HDOA requests concerning the future development of the Coop. Following the AI process, the board of directors, the General Manager, and Coop members took tangible steps towards achieving some of the stated goals of the group; most notably include the efforts made to achieve the 2014 production goals and complete HDOA application packages. The General Manager and HAC volunteers began assisting Coop members who had not completed application packages, to help bring them into compliance with HDOA requirements. A small group of members initiated a farmer's market booth, where they collectively marketed their products at two locations in the town of Waimea, and started the Haina Food Hub, a wash-pack facility available to all members for a monthly fee. The board agreed to begin a marketing effort for the Coop to increase its visibility in the community; consequently they purchased HAC-branded merchandise to sell at local events and farmer's market booths, and created a website to bring awareness to the community about Coop, its members, and Hāmākua-grown products. These efforts reflect the commitment of the existing members to the Cooperative and its future, despite the level of their individual engagement in commercial-scale agriculture.

Challenges

The Coop experienced numerous challenges in its development, and continues to face many of them as of January 2016. The devolution of management responsibility to a newly-created community-based group resulted in a plethora of unanticipated consequences for the State and the HAC Board of Directors, staff, and its membership. Challenges include the devolution of responsibility for land management from the HDOA to a community group, a mediocre working relationship with the HDOA, non-compliant members, variable land quality, the uniqueness of the organization as a land-leasing cooperative, low demand for land by qualified farmers, structural restrictions on Coop land, changing definitions of agriculture and farming, and the uncertainty of the Coop's future. The following themes were discussed by Coop member farmers throughout the field research as challenges to their success as farmers and to the Coop's success as an organization.

Devolution of Responsibility. The devolution of management responsibilities for HDOA land to a newly formed community entity, the Hāmākua Agricultural Cooperative, resulted in many of the Coop's challenges. In hindsight it appears that the process was done with insufficient guidance from the HDOA as to how to successfully operate a cooperative organization, approve members, handle disputes, and so on. The creation of a locally-based coop, it was hoped, would ensure that lands were leased to eligible individuals who were actively farming. Essentially HAC's Board of Directors would alleviate some level of responsibility within the HDOA to manage and oversee small diversified agricultural lots on Hawaiʻi Island from their home offices on Oʻahu. The personality characteristics commonly shared by board members include them being more legitimate commercial producers, willing to volunteer to serve on the board, and being well-liked by other Coop members. A successful board is able to address member concerns, work with the HDOA to address Coop challenges, and identify opportunities (e.g., bulk purchasing, shared processing facilities) that will enhance the value of being a coop member. Unfortunately, not all boards were as successful as those that were in place during the process of the Coop's recovery.

Throughout the Appreciative Inquiry process members shared several concerns about the inability of the board, past and current, to successfully manage and operate the Coop. Because board members are elected from the membership, and members are ideally farmers, the leadership is not necessarily skilled in cooperative processes or organizational development. Members expressed the need to have the landowners (i.e., the HDOA) or a qualified land manager carry out essential Coop functions.

> It's too much to expect elected board members from a community of farmers to run a business. –Coop member (In an AI Interview, 2009)

> We need a coordinator. … That's where the lack of trust comes in. We need someone to maintain a true independent, neutral position that everyone can trust. –Coop member (In an AI Interview, 2009)

> Let the land managers manage the land. –Coop member (in an AI Interview, 2009)

> [W]e need to help the farmers become producers; we shouldn't be dealing with land leasing. We need people that are experienced administering leases. We're

> operating under the guidance of the state but the state doesn't really guide. [The Coop is] just land leasing. –Coop member (In an AI Interview, 2010)
>
> They need people who know how to run [a] business. –Coop member (In an AI Interview, 2009)
>
> People come in and we have no idea what their integrity is … they've been in the area 3-6 months and they don't know the history [of agriculture or the Coop]. – Coop member (in an AI Interview, 2009)

Depending on a volunteer board of directors to effectively manage the Coop is inherently risky as their turnover is quick and their business skills varied. With an elected board there is the chance that individuals will be chosen that end up generating distrust amongst the members and problems for the organization. For example, the selection of a board immediately prior to the fieldwork period, resulted in significant disagreements amongst the membership that resulted in a lawsuit and ultimately the process of coop recovery that was discussed earlier.

As leadership evolved between HAC's inception in 1998 and the time this research was initiated (2009-2015), existing leadership was not always aware of HDOA's eligibility rules for members. Coop management stated in 2015, "we didn't even know the rules we were supposed to be following; [HDOA] told us 10 years after the fact." Consequently, unapproved members were placed on land, some of whom did not meet HDOA requirements. Some of these members thrived and continue to operate small farms, while others have had to be removed through legal action due to their unwillingness and/or inability to farm.

When eligibility requirements were made known to Coop leadership, significant efforts were pursued to bring current members into compliance with eligibility rules. Additionally, the Coop manager and volunteers assisted forty-three members with their application packages, including aiding thirty members with the creation of business plans as required by HDOA. Additionally, some members felt that certain eligibility rules would have prohibited displaced sugar workers from gaining membership. For example, at a board meeting in 2010 a former board member stated:

> "[W]e used to require a business plan but to the extent it illuminated the people that we were set up to serve ... like sugar workers, they're not going to qualify under this application package. [The HDOA] couldn't enforce the rules because as they stood, at the time the coop was created, the people they created it for

> wouldn't be able to qualify." –Former HAC board member (In an HAC board meeting, 2010)

Whether boards knowingly disregarded HDOA rules or were in fact not aware of the rules they needed to follow, speaks to the challenges expected from the devolution of management authority, including the inability of the Coop to transition effectively between boards and pass on clear administrative responsibilities, and the HDOA's lack of oversight of HAC's activities.

Working with the HDOA. When the Coop went into default it began working closely with the State DOA to address issues of noncompliance and rebuild the Department's trust in the organization; prior to the Coop receiving their default status, interactions between the Coop and the HDOA were infrequent and focused primarily on administrative matters. After years of the HDOA taking a hands-off approach, the sudden enforcement of the rules in the master lease was a surprise for the Coop. A former director of the board explained to the membership that the Coop would strive to be successful and continue to work with the HDOA to address the organization's needs.

> Unfortunately because of a recent renegade board the DOA came down on us and they're holding us to every detail of the master lease that we haven't been held to before. …We won't be satisfied with surviving; we want to become a real contribution to the community, a real opportunity for farmers to get a go. Not a meeting goes by that we don't come up with new ways to pepper the DOA with what we need to move forward. –Board President (In an HAC board meeting, 2011)

Since 2009 Coop management has developed a stronger working relationship with the HDOA, however they continue to face challenges in dealing with the Department. Members expressed various challenges in carrying out their responsibilities as a land-leasing cooperative and enforcing HDOA rules. There is an inherent conflict of interest when farmers serve on the board and are responsible for policing their friends and farm neighbors. "As a farmer and board member I feel obligated to members to not be a whistle blower on these matters … not be a policeman for the DOA," remarked a Coop member (2011), "let [the DOA] tell us when they have a problem and not do their work for them." One member remarked, "we have to be careful because we're in default … if [Coop administration] call[s] [the HDOA] they'll find another law

we have to follow" (Coop member, 2011). Coop management reiterated their stance to enforce HDOA rules while supporting member's efforts to farm.

> [The HDOA] is difficult to work with and their job is to make sure that we follow all the rules and there are a lot of them. … The leadership [of the Coop] has taken a stance that we are not going to enforce anything the DOA hasn't asked us to enforce. We are not going after things unless the DOA is telling us to. We are trying to support you all and your efforts to farm. –Coop General Manager (In an HAC board meeting, 2011)

While some members feel that the HDOA does not respect the Coop and chooses to 'stonewall' the Coop when they call to express concerns or ask questions, others feel that the HDOA respects the organization but is slow to respond because they are short-staffed and overworked. The Chairperson of the HDOA confirmed this sentiment, in responding to concerns about irrigation at a 2013 annual meeting.

> Not by way of excuse but by way of explanation, during the last economic downturn 40% of the DOA was rifted in one fell swoop. … so we know where the bottleneck is. –Scott Enright, Chairperson, HDOA (In an HAC annual meeting, 2013)

When the HDOA placed the Coop in default, the Coop increasingly relied on the HDOA's responsiveness to questions and concerns regarding elements in their Economic Recovery plan. However one of the most commonly cited concerns by Coop management was the HDOA's slow response rate to Coop inquiries, particularly on matters regarding membership approval. As the Coop's main concern is achieving full capacity and having all lands leased, delays in approving members threatens the Coop's ability to pay their lease in full to the State.

Non-Compliant Tenants. In 2009 HAC's Board of Directors and the HDOA acknowledged that there was a subsection of the membership that was not actively engaged in agricultural production. Since that time the Coop has worked hard to bring all members into compliance with HDOA regulations in order to preserve their membership in the Coop. Coop management has assisted members by working with them on application packages and business plans, and providing moral support. When the eligibility rules were understood by the board and the General Manager, and members were told that they needed to be compliant within three years, a total of 29 members returned their leases to the Coop, representing 33% of the Coop's

membership as of 2014; the remaining members who were not engaged in agriculture were put on notice that their land was required to be planted out by June 2014.

With little enforcement by the HDOA or the HAC Board of Directors, it was easy for members to lease land and delay their engagement in farming. HAC land is extremely affordable for land on the Hāmākua Coast. Because HAC land is so attractive – aesthetically and financially – some members leased land and then held onto it for years with little to no intention to actively practice agriculture. Coop members would complain that their coop neighbors were: just "hanging out on their land smoking marijuana"; off-island tenants who were holding on to their leases with the hopes of relocating to the island one day; or just enjoying "owning a piece of the rock" (Coop members, 2013). Some members constructed structures on their lots and lived in them illegally, enjoying a very cheap homestead on the beautiful Hāmākua Coast, and some members rented out illegal structures to friends. While living on the land was an illegal practice, Coop management lacked the experience and enforcement capacity to evict people from their land.

Prior to 2009 when members made the decision to stop farming they either handed their lands back into the Coop, or 'sold' their leases through community news outlets (newspaper, Internet, flyers, etc.). While this was not allowed by the board or the Manager, it happened without their knowledge. Members would price lots based on the length of time left on the Coop's master lease with the State, improvements made to the property, machinery and infrastructure included in the sale, and the amenity value of the land given its location and ocean view. Consequently, the board was not always aware of who was farming the land until payments were made. In 2009 when the eligibility requirements were enforced, the board had to require sub-lessees who had acquired their land informally to come into full compliance with Coop rules.

Land Quality. The Coop consists of 712 acres of usable land; however the Coop is responsible for collecting lease payments on 930 gross acres, which includes gulches and other areas where it is not possible or very difficult to practice diversified agriculture, and are best suited to orchard or pasture use due to their slope and rocky terrain. Currently all the land in the Coop is classified as 'agricultural land' by the HDOA's local irrigation district, and is therefore subject to water rates that are almost twice as high as land classified as 'pastureland'. In

conversations with Coop management (2013), they feel that "the land just isn't that good; it's not pristine." Some members (2013) also feel that lot sizes are too large to attract those interested in small-scale agriculture. The General Manager stated at the 2013 annual meeting, "as a new farmer to take 10 acres, it's too much." A member concurred by saying that "they're too big for a lot of people… to dip their toe in and see if they like agriculture" (HAC Annual Meeting, 2013). Hawaiʻi's median farm size is six acres, which is in line with the General Manager's perceptions of land demand by interested members, "back then when the plantations shut down [farms] were acres and acres, but it's a different style of farming now, it's the small family farm. They are looking for 2, 3, 5 acres at the most" (HAC Annual Meeting, 2013).

Land-Leasing Cooperative. The Coop is the only land-leasing cooperative in the State, and as far as current research shows, the U.S. At an annual meeting for the Coop in 2014 the uniqueness of the HAC came to the forefront of the discussion. The Chairperson of the Hawaiʻi Department of Agriculture spoke about the opportunities inherent in cooperatives, particularly in Hawaiʻi:

> It was the end of sugar and there were unique conditions. My friend Dwight Takamine, he was Chair of Finance for the House … he thought this would be beneficial to the sugar workers, that this Coop get formed, and you know there was real potential. It was unique. The DOA wasn't necessarily looking to do a Coop here, they would have taken back the lands, taken their time, broken it up… So you are unique. And unfortunately that wasn't stressed with the Department, and it is now. … The future of agriculture in the State is with coops. … If you aren't working together as a group it's going to be really hard to do agriculture in the future. You're going to need to process together, you're going to need to grow certain crops together so that you can get your shipping costs down and get them to the markets that need them. Your transportation costs … if you have a hub like this you don't all need to truck your crops where they're going. … get your costs down and your profits up. It's the future. And it's certainly the future in an island state like ours. So we are promoting [coops]. You are unique. –Scott Enright, Chairperson, HDOA (In an HAC annual meeting, 2013)

It was clear throughout this research that the Coop feels as if they are doing a service for the HDOA by leasing state land to community members and assisting in its management. Conversely, the HDOA, by providing affordable land to diversified agricultural producers, feels as if they are doing a service for the community. According to the HDOA, land parcels could

more easily be consolidated and leased to local ranchers, with decreased administrative hassle for the Department, albeit at a lower lease rent (HDOA staff, pers. comm., 2014).

Cooperatives are typically formed to market products, or to gain access to goods and services; the impetus for creating a cooperative commonly stems from its members. The Hāmākua Ag Coop, created as land-leasing cooperative, is unique because the membership did not advocate for its creation, nor did they desire a particular good or service being offered by the cooperative, other than affordable farmland.

> The only reason to be a coop is that we don't have to pay excise tax. … even though it's called an ag coop it's not an ag coop. It's not a truly bona fide ag coop, but a land leasing coop. It wasn't bona fide farmers that it was formed for … well, they were in the sense that they worked on a farm, the plantation. –Coop member (In an HAC board meeting, 2010)

One member remarked on the Coop's creation in a board meeting in 2010, "coops form when they recognize a common problem, but ours came from the top down." Following the Coop's formation, some members worked together to collectively produce and market papaya, however that was largely the extent of traditional cooperative behavior. Following HAC's legal challenges and their default status, the Coop explored other collective activities to better develop the organization and prove their commitment to their members and the HDOA. Consequently, the group started a wash-pack facility for its members, initiated farmer's market booths where HAC members could sell products, and began offering bulk purchasing for members.

These initiatives did have an impact on the HDOA who saw a renewed interest in and commitment to the health of the Coop on behalf of its members, however on the ground the activities resulted in little 'cooperation' among members. Less than five members utilize the wash-pack facility and sell products through the Coop's farmers market booths, however 20 are taking part in the bulk purchasing opportunities that are organized by the board. It continues to remain a challenge for members to behave in cooperative ways, given the structure of the Coop as a land-leasing institution, the infrastructure available for members, and the history of the organization itself. At a board meeting in 2011 one board member stated:

> Right now it's a Coop of jokers. When I joined people said "you're going to join that organization, you're crazy. –Coop board member (In an HAC board meeting, 2011)

However, the board, with the help of a committed General Manager and volunteer assistants, has shown incredible initiative in working on behalf of the organization and its members. They have worked to (re)gain the confidence of the HDOA, its members, and the community through engaging with each other and the community in ways that are common in traditional agricultural cooperatives.

Demand for Land by Qualified Farmers. The continued availability of HAC parcels is evidence, in part, that there is low demand for diversified agricultural land along the Hāmākua Coast. The HDOA requirement for the Coop to be responsible for the entire master lease fee, regardless of whether the Coop is at capacity, puts the coop at an economic disadvantage. Unwilling to charge existing members for the lease rents of unleased lands; the Coop operates at a deficit with the State and consequently has never been in good standing financially. The default period however has spurred Coop management to begin enforcing restrictions on payment and agricultural production.

> [T]his year we're getting rid of people who don't pay, next year we'll be getting rid of people that don't farm. … pretty soon we'll have a good group of farmers that support the Coop because their livelihood depends on it. –Coop General Manager (In an HAC board meeting, 2010)

While the current board has been effective in attracting qualified members and bringing existing members into compliance with production rules, it is not guaranteed that future boards will enforce the requirements as strictly. However, because entire boards to not turn over at a given time, there is a greater chance that the Coop's institutional history will be passed on to subsequent boards. As long as the primary responsibility of the board is to pay the master lease to the state, the incentive will always exist to fill Coop land with sub-lessees, regardless of their level of commitment to agriculture. However the State's renewed attention to HAC's practices will encourage future boards to prioritize members who pass the eligibility requirements.

State supporters of the HAC have stressed the value of the Coop for beginning farmers; however few beginning farmers are able to qualify for an HAC sub-lease due to rules on farming experience and tax documentation. In light of this challenge, the HDOA approved three-year temporary leases for individuals who completed a beginning farmer and rancher development program sponsored by a local non-profit, The Kohala Center. The 16-week program was

launched in 2012 and provides coursework and hands-on experience in diversified agriculture; as of 2016 the program had received an additional three years of funding to carry the program into 2018. Unfortunately the program is dependent on federal grant programs that are competitive and in some cases restrict participation to certain ethnic and socioeconomic groups. Some USDA grants do not allow Caucasians to participate in the training programs as their funding is earmarked for 'socially disadvantaged' farmers and ranchers, defined by the USDA as belonging to a socially disadvantaged group "whose members have been subjected to racial or ethnic prejudices because of their identity as members of a group without regard to their individual qualities[7]" (USDA, 2015). However the bulk of the interest in diversified agriculture by new and beginning farmers (defined by the USDA as having less than 10 years of experience) comes from Caucasian individuals in Hawaiʻi, despite Hawaiʻi's long history of non-Caucasians actively engaged in diversified agriculture (Kohala Center Staff, pers. comm., 2015).

The most common applicants that are eligible for HAC land are existing farmers in the community. Coop management feels strongly that the process of Coop membership "is not geared to new farmers at all, there just aren't that many folks out there who can qualify – it's geared to existing farmers with money who want to expand" (Coop member, 2013). These farmers may already lease HAC land and have therefore passed eligibility requirements, or they are experienced farmers owning land elsewhere in the area. The high start-up costs associated with farming also make it easier for experienced farmers to enter into the industry.

> We've spent a tremendous amount of time showing people these lands … and we are in a recession and it probably costs $40,000 to get a 10 acre farm up and running to get fencing and get it done right … and know that you'll see a year or two without any income. To get [new members] right now, it's not very easy. – Coop member (In an AI Interview, 2010)

Coop management views the existing HDOA eligibility requirements as favoring more experienced farmers. "What we are seeing is that the DOA qualification process is really for people that have been in the ag industry, *agribusiness people* (emphasis retained), you know, it's not for *'small family farms'* (emphasis retained), it's outdated" (General Manager, HAC Annual

[7] The USDA provides the following examples of 'socially disadvantaged groups': African Americans, Native Americans, Alaskan Natives, Hispanics, Asians, and Pacific Islanders. This eligibility restriction is the result of a Class Action lawsuit (Pigford v. Glickman) brought against the USDA in 1997 alleging racial discrimination in USDA's allocation of farm loans and assistance between 1981 and 1996.

Meeting, 2013). However, as acreage in the Coop is leased there becomes less land available for new members, beginning or experienced. As of January 2016 the HAC had 10 remaining parcels (74 acres) best suited to diversified agriculture and 5 leases (54 acres) more suitable for orchards and pasture use. While local ranchers have expressed interest in HAC land to raise cattle, they are discouraged by the irrigation fees that the district charges, as they have not been adjusted to account for pasture use within the Coop.

Qualified applicants must be able to meet all of HDOA's eligibility requirements, which can be challenging for some farmers. Coop management observed that the biggest hurdles are the business plan and the application package, particularly for first and second generation immigrants, former sugar workers, and for people who speak English as a second language. Another challenge is finding people who have filed tax returns. The application packet provided by the HDOA, approximately 27 pages in length plus 11 attachments, is daunting for many members and potential applicants. At a board meeting in 2011, a board member stated: "I got it down to three hours and I know it will get approved. You get governmental authority and they put up all this red tape. … they dish out all this red tape that prohibits farming yet they say they want to support farming."

The Coop, in an effort to address their default status, began conducting land inspections to ensure members were farming. In 2009, when approximately one third of the Coop was not actively farming and many were engaged in unapproved activities on their land (e.g., erecting unapproved structures, residing on the land), the inspections made many members uneasy. Conversations at Coop meetings often focused on what constituted farming and what crops members should focus on, and through these discussions it became evident that some members had very little knowledge about agriculture. At a 2009 board meeting, a board member asked, "What the hell is the crop? What is going to fill these 1,000 acres?" To which another member responded:

> Anything, there is a market for everything. We import most of our citrus and vegetables. You can grow all these things; it's a matter of 'do you want to do it?' I don't think people can use the excuse that they can't figure out what to sell? – Coop board member (In an HAC board meeting, 2009)

To which another board member remarked,

> I'm not sure what crop to invest in and know there's an insured market. But you have to have enough production to sell to the schools and the military. … you can't just have a couple acres. … There's nothing that fool proof. It's not easy. – Coop board member (In an HAC board meeting, 2009)

The majority of successful farmers follow a path of acquiring land, assessing which crops grow best in that area, locating markets for the crops, and expanding production. These remarks indicate that some members are either hesitant to commit to a production plan, lack experience farming, or have not determined the crops most suitable for their location. During the AI process many members also spoke about the difficult nature of farming in Hawaiʻi, with its 52 week growing season. Comments ranged from the low pay, to the level of commitment required, and the need to produce sufficient quantity for many local markets.

> There's not a whole lot of pride in it anymore … at $1.00/hour in a good week. … You have to love it because it doesn't love you. –Coop member (In an AI Interview, 2010)

> Farming is harder than people think… Don't do it unless you're committed to it working, or it won't. … Stick it out … it takes a long time to juggle everything till you make a profit … work two jobs until it works. –Coop member (In an AI Interview, 2010)

> Waimea is the only place you can make money for your food. In Hilo you're competing with everyone and its $1 lettuce… you can't make money going there unless you have a lot of stuff. –Coop member (In an AI Interview, 2010)

Structural Restrictions on Coop Land. The State provides members with access to their parcels through state-owned roads, but the Coop lands lack basic agricultural infrastructure including potable water and structures for on-farm storage. The majority of Coop farmers lack the financial resources to install permitted structures or certified food processing facilities; and given the small size of many members' parcels, it would not make economic sense for them to invest in them. The HDOA restricts the types of structures that are permitted on Coop land, requiring prior approval and building plans, and restricting structural use to storage and processing; living or spending the night on Coop land is not allowed. In 2010 the County required that structures over six feet tall be permitted, which angered some Coop members:

> If it's over 6 ft. tall I'm supposed to take it down but I'm not taking it down. They can come out and take it down themselves…. I will call [the HDOA] myself and

> ask [them] if I need to spend $10,000 to get a permit to keep my fertilizer out of the rain. It's ridiculous. [HDOA doesn't] know how much it takes to farm. I'm 26 years old and I don't have that kind of money. The rule shouldn't apply to something like this. Who do they think we are? I'm not Dole Pineapple Corporation. –Coop board member (In an HAC board meeting, 2011)

The rule was subsequently changed to require permits on structures over 1,000 square feet. HAC members, along with leasehold farmers on diversified agricultural land owned by other major landowners across the state (e.g., Kamehameha Schools, W.H. Shipman Ltd.), have responded to the limitations on structures by putting trailers on their land, erecting 'portable' structures that appear easy to take down, and building unpermitted structures on their land in hopes of not being discovered.

The population of Hawaiʻi Island is grouped primarily into small towns located along the highways that circle the island. Consequently, most prospective farmers look to lease land nearby the community where they live; if a lease is located too far from their home, the cost of commuting discourages regular use of the land. Because members cannot live on their lease lot, they must already reside nearby or be willing to relocate to an area close to their farmland. Farmers typically spend every day on their land, working the land and keeping an eye on farm infrastructure (e.g., irrigation, machinery). When there is not a presence on the land regularly, theft of crops, machinery, and tools is a concern. Because living on leased land is not allowed, farmers must purchase or rent a home nearby, which significantly adds to their personal expenses. This often results in members taking off-farm employment to cover the costs of their residence (mortgage or rental lease); and when farm revenue does not cover their personal and farm-related expenses, they spend more time in off-farm employment and less time working the land. During the time that field work was conducted, the issues of living on the land was the most commonly cited challenge for farmers on leased land across Hawaiʻi Island.

Defining Farming. The definitions of agriculture, farming, and farmer have been challenging to interpret for the Cooperative. Many HAC members are not actively involved in traditional commercial agriculture, but instead hold onto their leases so that they can engage in hobby farming, subsistence farming, or gardening. The HDOA Chairperson addressed this issue at an Annual Meeting in 2013, indicating the State would be flexible in defining these terms.

> The State is looking for people to grow food. That's what we want. We're not looking for … while we wouldn't mind more [name of a successful farmer], you know very successful corporate agriculturists, [but] if you've got viable agriculture, you know community-based agriculture, that's fine, that works for the State. –Scott Enright, Chairperson, HDOA (In an HAC annual meeting, 2013)

The master lease with HDOA states that members must derive over 50% of their income from agriculture; however HDOA does not enforce this rule. Other local stakeholders, including the local USDA Natural Resources Conservation Service (NRCS) office, defines a farm as having $1,000 in gross sales annually; members desiring financial assistance from local USDA offices must show that they meet this definition to qualify for its programs. The confusion created by the flexible definitions for these terms is evident among members at community meetings. In a response to a conversation about a hobby farmer, members debated the term 'farming':

> Coop board member 1: That's a fake farm. Where's the income?
> Coop board member 2: What is farming?
> Coop board member 1: Farming is an income. You're actually physically making money, or trying to make money.
> Coop General Manager: No, [it means] you're in production.
> Coop board member 3: We all agreed when we got this lease that we'd do something (laughter). … I'm not really trying to farm for money. If you need to make money farming then you've got to be realistic about it. You need to be honest with yourself and what's possible. No pie in the sky. I'm more of a dilettante; I'm a hobbyist, not a farmer.

The Coop attempts to prevent hobby farmers and 'gentlemen farmers' from acquiring leases, individuals who farm more for pleasure than profit, by encouraging members to complete business plans for their operations. Nevertheless Coop members continuously push the board on this issue and there are a handful of members in the Coop that are not traditional commercial growers (Coop member, pers. comm., 2008). However, discussions revealed that while some members might be considered gentlemen farmers, "they're not the problem, it's the fact that [local farmers] can't afford to farm" (Coop member, pers. comm., 2008).

> In the 1970s I wanted to be an organic gardener, so I did. Got a piece of land in Āhualoa [a community near Honokaʻa town]. I sold produce, but I could see that I wouldn't make enough money to support a family … so I did wood working to make money and gardening to eat. –Coop member (In an AI Interview, 2010)

Therefore, members feel it is advantageous to have someone on the land that is farming for pleasure and can pay their lease, versus having unleased land or members who are delinquent on their payments.

Uncertainty of the Coop's Future. The last challenge that was discussed throughout the meetings and interviews was uncertainty over the future of the Cooperative. Lease longevity greatly influences a tenant's willingness to invest in improvements to the land, fixed or otherwise (e.g., fencing, irrigation, catchment, grading, soil quality, road repairs). The length of the lease can also determine the ability of the farmer to access capital from lenders, many of whom are unwilling to lease significant amounts of capital to farmers who lack long-term leases. As the year 2033 approaches, the end date on the master lease, the leases become less and less attractive for incoming members, as they are uncertain about State's commitment to renew the Coop's master lease. Tenants increasingly shy away from making long-term improvements to the land because they know they will be less capable of transferring the land and selling the improvements as time passes.

Opportunities

> There are occasional success stories. –Local vegetable farmer speaking about farmers who succeed in their business (pers. comm., 2011)

Cooperative members throughout the field work period commented on the numerous benefits afforded by the existence of the Coop. Overwhelmingly Coop members felt that the availability of Coop land allowed them to access a piece of land on the Hāmākua Coast for farming that would have been financially inaccessible to them in the open market. Despite being forced to live on land in neighboring communities because of the structural restrictions on Coop land, they enjoyed the opportunity to begin farms and initiate agricultural projects that were not possible on smaller parcels in the neighborhoods where they lived. For residents trying their hand in agriculture in their backyard or on other family-owned land, state-owned leased land offered them the opportunity to scale up without the expense and risk of purchasing land.

Residents of the Hāmākua community and members of HAC discussed the protection of Hāmākua's rural spaces through its ownership by the HDOA, the County of Hawaiʻi, and Kamehameha Schools (KS), following the closure of the plantation. In North Hilo some of the

rural areas have been gentrified as former C. Brewer land entered the open market. In Hāmākua, where land was transferred to land managers in large tracts, particularly to the HDOA and KS, the rural nature of the area was preserved. It is not certain how the Hāmākua landscape might have changed if it entered the free market; it is possible that the land may have been subdivided into parcels 40 acres or less in size and developed as gentlemen homes. Therefore, state ownership may have served to slow the process of rural gentrification in Hāmākua. Despite these benefits, some respondents questioned if state ownership might have slowed the success of diversified agriculture through its model of leasehold farming.

Today the Hāmākua Agricultural Coop is providing benefits to members that they might not have had access to otherwise. Members have access to a bulk purchasing program, group processing facilities, and farmer's market booths. The Coop has regained the respect of the HDOA through these cooperative practices, and the State may serve as an advocate for the Coop in times of distress. For example, if the irrigation ditch were to fail, cutting off irrigation water to member farms, the state might be more inclined to assist the Coop in reinstating water availability due to the Coop's commitment to local agricultural development. Simply by leasing land through a collective group, members benefit from a network of like-minded individuals with whom they can collaborate; however members will need to continuously work to identify ways they can work together to increase the viability of their businesses and the cooperative as a whole.

Case Study 2: Kapulena Agricultural Park

> Usually for the farmers and ranchers, when one hurdle comes up, you hear excuses about why no can ... but this one (pointing to Hawaiʻi County Mayor Billy Kenoi) when a hurdle comes up we see the county guys figure out how to make it happen. … Usually you hear rhetoric about how agriculture is important and defines the character of the community, but this administration has walked the talk. –Senator Takamine (In a public meeting, 2011)

In November 2009, the County of Hawaiʻi's Mayor Billy Kenoi announced to the public in a community meeting in Honokaʻa, a small town on the north end of Hawaiʻi Island's Hāmākua Coast, that he was committed to making county-owned land in the nearby community

of Kapulena available for locally-based diversified agriculture under the designation of an Agricultural Park. The project was to involve a close partnership with the Hāmākua County Farm Bureau, who would manage the lands, and several community groups that would provide technical assistance in Park development and land use. This would be the first Agricultural Park on land owned by Hawaiʻi County.

The Kapulena Agricultural Park (KAP) encompasses ten parcels above the Hāmākua Ditch, an irrigation system built during the plantation era, on a combined 1740 acres of former sugarcane land (see Figure 3.1). The land was acquired by the County of Hawaiʻi from Hāmākua Sugar Company in 1994, as part of a settlement of back taxes owed to the County. Between 1994 and 2010 the land laid fallow, which allowed non-native grasses and tree species, such as ironwood, to grow prolifically on the property. The County was neither losing nor making money from the property during this period, as it did not pursue use options or invest in improvements. According to the County of Hawaiʻi's Land Use Pattern Allocation Guide map in the Hawaiʻi County General Plan (COH, 2005), the Kapulena Ag Park is located on land designated as Important Agricultural Land (IAL). The IAL program is administered by the Hawaiʻi Department of Agriculture, which provides incentives to landowners to encourage agricultural production on lands under IAL designation. The Tax Map Key parcels that comprise the Kapulena Ag Park are zoned A-40a by the County of Hawaiʻi, designating a minimum building site of 40 acres.

The County considered selling the land in 2010 to address a budgetary shortfall, however the Draft Environmental Assessment (EA) prepared for the project stated that "community interest in using the land for diversified agriculture prompted the County to consider other plans for the property" (PBR, 2010). The County decided to "forego generating revenues as a primary objective and instead to use this County asset to pursue community objectives in terms of promoting agriculture" (PBR 2010). The County Department of Finance saw the lease rents (or permit fees) as "nominal," not expecting them to be "a major general fund revenue source", but instead saw the Ag Park as a means to serve public interest and further the County's sustainability goals (PBR, 2010).

County and State representatives identified several benefits that would result from the creation of KAP, including supporting future farmers, making land available to local agricultural

producers, and preserving the rural character of Hāmākua. When the County announced the project, Mayor Kenoi expressed their intentions for the effort:

> We want to support the hard-working Hāmākua farmers and ranchers, and we also want to plant the seeds of opportunity for our next generation of farmers. …We want to make these lands available to entrepreneurs, educators, and community groups with a vision for the future of agriculture on this island. –Mayor Kenoi (In a COH Press Release, 2009)

The economic opportunities that KAP could provide to the local community were also touted as a significant benefit. Drawing on 2005 employment statistics from the U.S. Census (State of Hawaiʻi Data Book, 2009) that reported that only 31 individuals in Honokaʻa were employed in 'farming, fishing, and forestry occupations' (3.3% of the population), the EA found that:

> The future potential agricultural use of the lands can only enhance the agricultural economic base of the Hāmākua area. The potential use in agricultural activity would likely create long term agricultural related jobs. In light of the economic impact of the closing of Hāmākua Sugar, returning the site to agricultural use consistent with its agricultural zoning would benefit the local economy. (PBR, 2010).

State Senator Takamine and State Representative Mark Nakashima worked closely with the Kenoi administration in preliminary planning for the Park and emphasized KAPs alignment with the State constitution, in addition to the 'agricultural opportunity' KAP would provide to the community.

> This is really a win-win scenario for the community. By making these lands available to the community, we protect prime agricultural lands from development and maintain the rural character of the community. Given the economic reality of so many families struggling, providing agricultural opportunities makes sense and honors our statewide goal of improving sustainability. –Senator Takamine (In a COH Press Release, 2009)

The Hawaiʻi County Department of Finance, the responsible party for the project, outlined their intention of permitting or leasing the property for agricultural use within the agricultural park designation. In Hawaiʻi, 'Agricultural Park' designations are defined by Hawaiʻi Revised Statues Title 11, §166-2 as "any agricultural or aquacultural complex so designated by the board, for which state land or state funds are used, in order to meet the goals

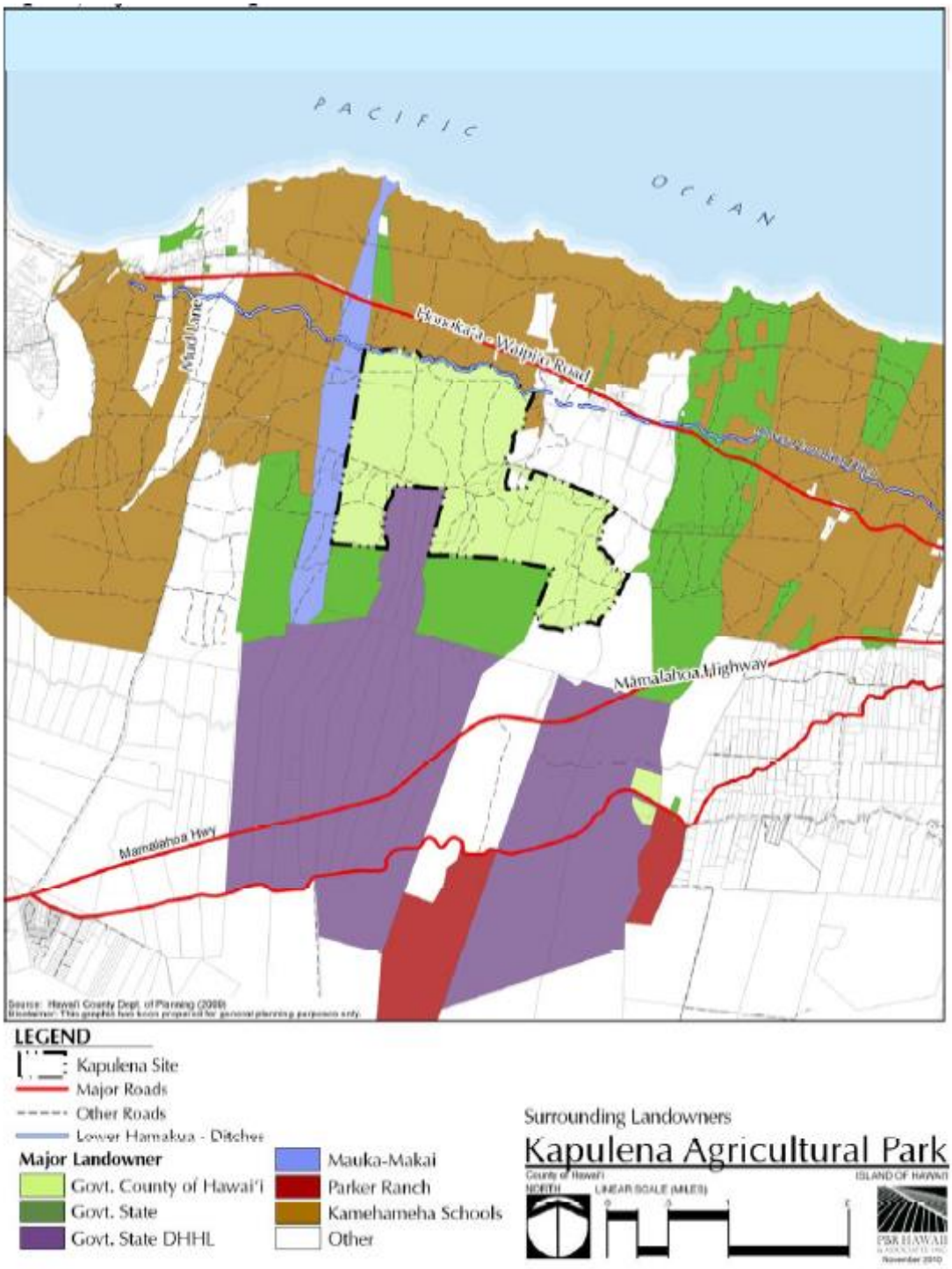
and objectives stated in 166-1[8]", which includes that the lands be used for 'productive purposes' to further the contribution of diversified agriculture and aquaculture to local and export markets. There are 11 agricultural parks statewide that are operated by the Hawaiʻi Department of Agriculture, including five on Hawaiʻi Island. The parks vary between ten and 1,740 acres in size, with Kapulena Ag Park being the largest of the state's parks. The number of lots per park varies between two and 56 lots, excluding Kapulena which had not designated individual plots as of January 2016. At the Park's blessing the Mayor spoke about the immense opportunity of the project: "to have the largest agricultural park in the State of Hawaiʻi be a County and community one is a very humbling, satisfying, and rewarding experience; our job was to just remove obstacles, hurdles, and barriers along the way" (Big Island Video News, 2012).

Hawaiʻi County considered several alternatives in the EA, including no action, exchanging the land, selling the land, and leasing the lands directly to agricultural users. The first alternative, 'no action', was not preferable due to the inability of the County to realize any benefits from the land, such as tax income from leasing or selling the land. The inability of interested parties to come to a mutually agreeable decision on exchanging the land discouraged the County from exploring a 'land exchange'. The third and fourth options had more potential benefits for the County however they came with considerable challenges. The County considered selling the land to make it more available for productive use, which would have provided the County with funds from the sale of the property and enabled them to generate real property taxes from privately held land. The EA states that this option was forgone because "as this option was considered, the community objective to promote agriculture gained traction and it was determined that the land has value that merits the County continuing retaining it in public ownership" (PBR, 2010). And lastly, leasing the lands directly to agricultural users was a less viable option as it required substantial effort from the County in administering the daily details

[8] "The legislature finds that important agricultural lands should be preserved for productive purposes; the contribution of diversified agriculture and aquaculture to export and local markets should be expanded, thereby increasing its importance in the State's economy; and continued use of the State's agricultural land resources should be ensured by providing lands to new farmers, displaced farmers, and other qualified farmers. In order to meet these goals, the objectives of the State shall include the provision of: lands of appropriate size and productive potential, with an adequate supply of water, to ensure economically viable farm operations; lands at reasonable cost with long term tenure and security from urbanization pressure; and lands with common facilities and activities to encourage farm production and distribution economies" [L 1986, c 222, pt of §1] (In *HI Rev Stat § 166-1 (2014).*

of an agricultural lease (County official, pers. comm., 2016). Local entities such as the Farm Bureau were believed, by the County, to be more adept at managing an agricultural park, and that such partnerships can facilitate agricultural experimentation and education (County official, pers. comm., 2016).

Figure 3.1. Kapulena Agricultural Park and Surrounding Land Owners, 2010



Map credit: PBR Hawaiʻi and Associates, Inc., In Kapulena Agricultural Park: Draft Environmental Assessment

Project Process

The KAP development and implementation process was stretched out over approximately five years, and as of January 2016 the implementation was still underway, with a cattle lease arrangement being drafted between the County and the Hāmākua County Farm Bureau, and little progress made on leasing the additional 1,500 acres to local farmers. The project goals focused on the somewhat simultaneous activities of engaging the community in a decision-making process, developing the managerial infrastructure for the project, and preparing the land for Park users.

At the time the Draft Environmental Assessment was performed in 2010, the land was overgrown with Guinea grass, ironwood trees, and other invasive species. The first phase of the project entailed opening up land and removing these non-native species, followed by an initial grazing pilot project planned for 2011, where ranchers were invited to participate in a program on 250 acres in the Park. At the time it was estimated that the acreage could accommodate over 100 cull cows, animals removed from the main herd to maintain optimal productivity. According to a Press Release from the County of Hawai‘i (COH, 2011), the "cooperative grazing program will provide grazing opportunities to allow local cattle producers to remove their cull cows from their herds for fattening before marking them." In addition, the cattle program would have the added benefit of helping "clear thick vegetation on former sugar cane lands that have lain fallow for more than 15 years"; according to the County, once the lands are grazed down "they will be made available for more intensive farming projects proposed by the community" (COH, 2011). The grazing projects would be carried out in conjunction with the Hāmākua County Farm Bureau (HCFB), a local organization primarily focused on ranching, and would be expanded once sufficient infrastructure was in place. The HCFB would be responsible for deciding how local ranchers participated in the County-HCFB lease, potentially through joining the HCFB organization. Following the pilot grazing project, select lands were to be opened to the public for diversified agricultural operations. The EA states that "cattle will be moved off of these *makai* lands as the more intensive agricultural demand for these lands warrant" (PBR, 2010). It was originally planned that grazing would take place on a portion of the Kapulena lands as they were prepared and infrastructure (e.g., water and fencing) was in place, to "demonstrate best practices for increasing the per-acre production of grass-fed beef" (PBR, 2010). The County originally

intended pasture projects to occur alongside silviculture activities to demonstrate combined business models, with approximately 1,400 acres set aside for grazing and 300 acres reserved for diversified agriculture.

The pilot grazing project was initiated in early 2012, with expanded agriculture use expected to be phased in over a 10-year period. It was initially discussed that diversified agricultural lots would range from five to ten acres in size, with a lease term of ten years; fifteen year leases were discussed as a possibility if federal loan programs, such as those with the Farm Service Agency, required longer lease terms. As of November 2015 the County was nearing completion on a water reservoir that would facilitate the stocker program on the first 250 acres, and no plans had been made for the remaining 1,500 acres although some inquiries had been made with the County concerning diversified agricultural use (County employee, pers. comm., 2015). While the initial estimate that farmers might be on the land in March 2012 was not realized, a blessing was held for the Park in late July, 2012. At the blessing Mayor Kenoi spoke again of the opportunity the Park would provide to local farmers.

> This is one of the most exciting projects that we've ever had the opportunity to work on. It's been a true privilege. We talk about cooperation and collaboration. We talk about agriculture and sustainability. There's a lot of conversation, but we needed to have a meaningful project that was on the ground, where farmers could farm and ranchers could ranch. … Kapulena is an opportunity for the hard-working farmers and ranchers of Hāmākua to work the land. It will also allow the seeds of opportunity to be sown for subsequent generations who wish to make their living by cultivating the rich lands of North Hawaiʻi. –Mayor Kenoi (In Big Island Video News, 2012)

The project is in line with several land use plans and ordinances as outlined in the County of Hawaiʻi General Plan (COH, 2005) and the Hawaiʻi County Zoning Code, which provide direction for future growth and the legal basis for all subdivision and zoning ordinances, respectively. Project alignment with the County's General Plan facilitated county spending on the project. The General Plan's (2005) economic policies most in line with the KAP project are (1) the economic policy to "assist in the expansion of the agricultural industry through the protection of important agricultural lands, development of marketing plans and programs, capital improvements and continued cooperation with appropriate State and Federal agencies," and (2)

the land use goal to "identify, protect, and maintain important agricultural lands on the island of Hawai'i."

Numerous County resources were brought to bear on the project, including the administrative capacities of various County departments, to address roads, equipment repairs, water access, squatters and scrap vehicles on the site, fencing, and other property-related issues. The County partnered with Hawai'i County Correctional Center to provide manpower to install fencing and with the local office of the USDA Natural Resources Conservation Services to open up drainage ditches used by the plantation and conduct conservation planning for the property. Mayor Kenoi also worked closely with State Senator Takamine and Representative Nakashima in the process of acquiring the lands for Hāmākua's agricultural community. In one of the initial community meetings about the KAP (October, 2010), Senator Dwight Takamine expressed his appreciation for the Mayor for initiating the project and the financial resources the County dedicated to the project.

> From the very beginning with Billy being able to provide the land so that this would be a real opportunity for the farming and ranching community in Hāmākua and beyond … from the $20,000 that this past year grew to $100,000 in the County budget. For the first time we are seeing real commitment and support. We always talk about this project as the model for Big Island and maybe for the state. –Dwight Takamine, State Senator (In a KAP meeting, 2012)

Community Engagement and Decision-Making

The County of Hawai'i worked closely with the local community throughout the evolution of the project. Since the project's inception the County reached out to community leaders (i.e., successful farmers and ranchers, former sugarcane workers), agricultural stakeholders (i.e., HAC General Manager, educators), and other governmental agencies to help ensure the success of the project. This strategy of working closely with local stakeholders had several effects: (1) it allowed the County to incorporate local visions and goals for agriculture into the project; (2) it provided project staff from County offices access to local knowledge about the area; (3) it helped increase community support for the initiative, and (4) it enabled the County to identify local resources that could be drawn on to facilitate the development of the project.

In addition to working with State and Federal agencies, the County held several public meetings to solicit feedback from the community and key partners, including the Hāmākua County Farm Bureau, the Big Island Farm Bureau, Kamehameha Schools, the University of Hawaiʻi College of Agriculture and Forestry, the University of Hawaiʻi College of Tropical Agriculture and Human Resources, and The Kohala Center, a local non-profit organization. The process of working with the community to develop the project was heralded by the Mayor as a major achievement of the project.

> To see collective energy result in a beneficial project that … is focused on growing the next generation of farmers [and] ranchers … that is something I'll always remember. We didn't talk about agriculture or talk about sustainability but actually brought the community together to make it happen and getting it done is the most satisfying, rewarding part of the job. –Mayor Kenoi (In Big Island Video News, 2012)

Several community meetings were held and three committees were put together to address the main planning components: education, marketing, and land and water. Public meetings were held monthly throughout 2011 and the committees provided updates at each gathering. The following four needs surfaced during conversations with community partners:

- to develop and demonstrate best practices for sustainable and efficient grazing operations to support the grass-fed beef industry;
- to test alternative orchard and other crops for larger scale production;
- to test and provide incubator opportunities for value-added products; and
- to train farmers and processors in cultivation and business practices at different scales from family to larger-scale operations, with an emphasis to strengthen the family-farm based agricultural community in Hāmākua.

Due to the increase in the number of agricultural operations on the island, but a reduction in the total acreage in agriculture and ranching, the County believed that KAP could serve to increase the acreage in production locally by providing farmers with low cost start-up land for agricultural pursuits and areas where farmers could risk new product development, given the affordability of the land (PBR, 2010).

At one of the first community meetings, in February 2011, each KAP planning committee (education, land and water, marketing) discussed their efforts to date. Initial meetings between representatives from the State and County, and the community, resulted in the call for a 'Center for Agricultural Success' (CAS), an education initiative to "help train and support farmers to be

successful in agricultural pursuits" (Jadulang, 2010). A local taro farmer who spearheaded KAP's education committee, stated the availability of educational resources locally and the importance of working with young people:

> I wasn't raised a as farmer but I was able to learn and be mentored by people who had been farmers their whole lives. We have the Honokaʻa community kitchen, and business classes … so we know what it takes to start from scratch and be a farmer. So we need to start training the young people, and not just for KAP lands but for the whole community. Local food production is a hot commodity right now, all around the world, so it's a golden opportunity. –Farmer (In a KAP meeting, 2011)

According to a white paper produced by Senator Takamine's legislative aid, Melvin Jadulang, and the Kapulena Education Committee (Jadulang et al, 2010), CAS would provide a "full spectrum of ag education in Hāmākua," where currently only stand-alone projects exist. "With Hāmākua's great natural resources," the paper states, "we have the golden opportunity to establish and strengthen a family farm based agricultural community … with the Kapulena lands, the state-owned [Hāmākua] Ag Coop, as well as Kamehameha School lands provid[ing] a viable land base" (Jadulang, 2010).

Challenges

Because the Kapulena Agricultural Park is still in its infancy, there have been minimal challenges in its implementation; however as the project matures it is likely that additional challenges will emerge. The monthly community meetings served to update community members on the County's progress with Park, and allowed working groups to share their ideas and receive feedback. These meetings also allowed attendees to discuss real and perceived challenges to implementing the Park given their experiences in agriculture and community development projects. The main challenges that were discussed at the meetings included preparing the land for lessees, finding farmers to apply for the lease land, and determining the most effective system of land management and appropriate lease structure.

Preparing the Land for Lessees. Because the Kapulena agricultural land was overgrown with Guinea grass and invasive ironwood trees, it posed considerable challenges for the County in clearing the land and preparing it for potential lessees. The lack of agricultural water in the area also posed a significant challenge. In a conversation with County staff in 2016 (pers.

comm.) they addressed these challenges, "We acknowledge that the infestation of ironwood trees is an obstacle that may deter a potential lessee, and the lack of water. ... There have been some inquiries about the land, but terrain, access to water, ironwood infestation, and other issues have stymied the efforts." While a county water line runs along the *makai* side of the property, water would need to be pumped uphill to reach the majority of the Kapulena lands, a fairly costly endeavor. To provide water to the grazing project, as of November 2015, the County was in the process of constructing a rain-fed catchment reservoir that will sit on 250-acres of fenced land on the *mauka* side of the property.

The County and the steering committee turned to ranching as an initial land use that might be able address the quality of the land.

> Because of limited funding we couldn't go in with bulldozers because it would be expensive, so let's bring in cull cows, the older cows that … need a place to put on a bit of flesh so the processors can get …meat and the ranchers will get a little bit of money… We talk about being sustainable and we haven't done a good job at that, but this will keep the cows here and support local people. –Rancher (In a KAP meeting, 2010)

However, community members expressed concerns about the ranchers sharing the land with farmers in a timely manner, following the initial grazing pilot project.

> We did not want to see this project go the way it was going with the [Hāmākua Ag] Coop. We wanted to get the cattle on the land, the farmers coming up with their business plans, really solid farmers, and then go to town and farm on this land. –Land and Water Committee member (In a KAP meeting, 2010)

Conversations between committee members indicated that farmers could potentially come onto the land in March 2012, however, if farmers were not ready at this time the cattle would need to be placed back on the land to maintain the vegetation.

Finding qualified farmers. One of the primary discussions that occurred between individuals at community meetings was the challenge of finding farmers to take advantage of Kapulena's agricultural lands. Attendees noted the relative absence of farmers applying for locally-available land, and the challenge of finding farmers qualified for land with large land managers.

> [T]here are a few things you need to farm: land, water, and people. Well we have water, money has been put into the [irrigation] ditch, and we have the land … but the question is: where are the farmers? –Farmer (In a KAP Meeting, 2011)

> Where are the farmers? … Right now I don't see farmers; realistically Paʻauilo area has not been successful so just because you have land doesn't mean the farmers are going to come. –Resident (In a KAP meeting, 2010)

> We have a lot of land available. I get 2-3 calls per day from people wanting to farm land and the reason they're not on land is because they don't qualify with the DOA so depending on the qualifications you'll be surprised at the response you get. –HAC Staff (In a KAP meeting, 2010)

Many new and beginning farmers in the area are young and coming out of agricultural training programs or apprenticeships through organizations such as WWOOF (World Wide Opportunities on Organic Farms). While young persons are a new source of agricultural entrepreneurs and laborers, there can be disadvantages in counting on this demographic to apply for available land as many lack the experience and capital to become successful farmers.

> One major obstacle will be finding the farmers. … [T]here is a huge phenomenon called WOOFERS … they're excited and young … They don't necessarily have a great work ethic but with the proper training... –Farmer (In a KAP meeting, 2010)

Concerns about the availability of labor, in addition to finding enough owner-operators, was also stressed by local farmers.

> [The] idea of making Hāmākua a family farm based economy really started back during the plantation and 1,000 points of green … but we haven't seen as much success as we can achieve … We want to support the family farm [but] one of the challenges family farms face is having skilled labor. –Farmer (In a KAP meeting, 2010)

> The only reason people farm is because they want to farm. You can't go to the average guy and tell him to farm. The plantations tried to do it and give guys 5 acres and tell them to farm and it did not work. You have to have it in your blood. –Former plantation worker and farmer (In a KAP meeting, 2010)

County and University employees reiterated the challenge of finding farmers with sufficient capital to operate farms successfully, noting that those that want to be farmers are already farming.

> I receive a lot of calls in my office from people that want to farm but the challenge is that they just don't have the capital … If you want to farm there are no free monies, they want a grant but there are no grants. … That is a key element; if you don't have the money to get the thing started we won't have successful farms. –County employee (In a KAP meeting, 2010)

> The guys who are farmers are already farming, they already have the motivation, we have to educate the younger generation to become farmers. –Farmer (In a KAP meeting, 2010)

Land Management and Lease Structure

The County made the decision to work with the local Farm Bureau office to devise the process for cattle grazing on the initial 250 acres; it was hoped that this partnership with an organization located nearby the Kapulena lands, with substantial agricultural experience, could facilitate the success of the grazing project. In an initial public meeting in October 2011, Mayor Kenoi remarked on this partnership, "every time we run into an obstacle we talk to the Farm Bureau, the experts, those who know the land." As of January 2016 a decision had not been made regarding how best to manage the remaining 1,500 acres. In a conversation with a local County official in January 2016, they stated: "We do not have a plan in place for leasing out the rest of Kapulena (1,500 acres) … I would prefer a lessee taking over the 1,500 acres and not having to deal with a bunch of small leases. We also need to determine who will oversee the leases because that is not [the County Office of] Research and Development's purpose." If a lessee is found that is willing to farm on the entire 1,500 acres, it is likely that the County would manage the lease, however if it is broken up into smaller parcels the County will look for an outside entity to manage the land (County official, pers. comm. 2016).

Designing appropriate and effective lease terms is critical to ensuring that the community has access to the land and that lease terms facilitate the success of the tenants. Meeting attendees discussed lessons learned from the Hāmākua Agricultural Coop process that might benefit the development of the KAP lease policies; including targeting farmers with a diverse range of experience and who are skilled in the business aspects of farming.

> As we set up our policies to see who gets those leases... Going back to the history of the Hāmākua Ag Coop, initially we said it can't just be new farmers because the risk skyrockets, it has to be a mix of famers including those that have proven

> to be successful. We need to look at a mixture [of applicants]. –Local politician (In a KAP meeting, 2010)

> What we've seen [in the Hāmākua Ag Coop] is guys were given the lease … but nothing has happened … so let's not rush into it … let's make sure they have a business plan and the training necessary to be successful. …the last thing we want is all these lands leased out growing guinea grass. –Farmer (In a KAP meeting, 2010)

While initial discussions concerning lease terms suggested potential lot sizes and lease terms, the details of individual leases will be determined by the management structure chosen for the land and the interest of applicants. Community members in attendance at the initial KAP meetings may have had their hopes raised through these preliminary discussions about lease terms, including when they would be available and their potential cost.

> We put in 10 years to ensure that those that want to take advantage of the program through [the local USDA-NRCS] office will qualify, because they require a longer time frame [on the lease]. … So $1/yr/acre for both pasture and crop land. … It's not just about money it's about growing the next generation of farmers. And maybe having farmers on the land in March 2012? –County official (In a KAP meeting, 2010)

These hopes were likely strengthened when local politicians weighed in on the necessity of keeping lease rents low so that lessees could afford to take advantage of KAP.

> The benefit we have is that this is county land, so we are in control of how we distribute the land. We need to be cognizant that it is expensive to be a farmer. If we can make it affordable for first time farmers and give them an opportunity. That's what this land has been about; it's always been about the opportunity and the potential. –County Council member (In a KAP meeting, 2010)

Project Assumptions and Outcomes

The development of the Ag Park was followed closely by local politicians, community leaders, and media outlets. The discourse coming from politicians and project supporters reiterated the community benefits the Park would provide, emphasizing the availability of low-cost agricultural land for local farmers and ranchers, and the economic opportunities it would provide to area residents. Local reporters commonly highlighted the community benefits that would result from the project; these benefits spoke to the goals and visions articulated by the

community and helped generate acceptance and support for the project locally. Following a tour of the property in December 2009, Senator Nakashima's (Nakashima, 2009) project blog mentioned that "a center piece for the ag park is a community garden and educational component which will allow for access by residents of the area and will help grow the next generation of future farmers." Six years since the project's inception, local ranchers have benefited from the project through the cull cow grazing program, but there has been little progress on extending the Park's 'benefits' to other local agricultural stakeholders.

As with any project, the process was shaped by assumptions and anticipated outcomes. Based on policies and plans surrounding the use of the Ag Park, the County appears to make the following assumptions: 1) that Park users will either be residents of the community or acquire housing in nearby residential areas, as the County will not permit 'farm dwellings' on the property; 2) that there will be collaboration with educational/extension projects so that Park projects can be 'demonstrated' to the local community (e.g., grass-fed beef production, silviculture); 3) the intensity of agricultural uses will be limited due to the lack of water and infrastructure at the Park; 4) potential users will have the resources to install rainwater-catchment systems; 5) public ownership of the lands will give the county a "higher level of control over the property" which will allow them to more actively pursue the community objective of promoting agriculture (PBR, 2010); 6) partnerships with local agricultural and educational entities, will facilitate better management of the Park and integration with educational efforts; 7) the individuals in the community looking for economic opportunities desire *agricultural* opportunities and consequently the Park will improve the economic condition of the area through the creation of long-term jobs in agriculture; and that 8) the devolution of management responsibility to the local Farm Bureau will make it administratively easier for the County to manage the land. It is too soon to tell how these assumptions and anticipated outcomes will play out, however lessons from the HAC process may provide insight into some of the unexpected challenges and opportunities that may result from the project.

A Parallel Project

The effort to create the Kapulena Agricultural Park coincided with the County's attempts to sell 737 acres of County-owned agricultural land near the town of Paʻauilo, just 20 miles south

of Honokaʻa in East Hawaiʻi. The timing of the two efforts overlapped perfectly, which was oftentimes viewed by the local community and media outlets as a potential attempt by the Mayor to generate support for the land sales in Paʻauilo (Takamatsu, 2010). The 16 parcels in Paʻauilo, ranging from 12.8 to 110 acres, were also acquired by the County from Hāmākua Sugar Company upon the company's bankruptcy in 1994.

Prior to the land being placed on the market, the County held public meetings to explain the land sale to the public. Local residents repeatedly attended County meetings to provide comments and articulate their displeasure with the process on social media. Community members concerns varied from the misuse of County property, to fear over future owner's land use practices. Local County Council members stressed the need for transparency in the land sale process to ensure that the property fell into the hands of individuals who would respect the land and the community desires to keep it in small-scale agriculture. Community members felt that the County had poorly administered their budget and that the Paʻauilo lands were being sold to cover the County's deficit. Moreover, many saw the land as a community asset, and that local residents should have the right to use the land before outsiders were allowed to purchase it from the County. Community members noted that the land, as it was priced, was inaccessible to the majority of local people.

> Signs were on the wall when this budget was conceived and now to sell off the Hāmākua land … That would be like the federal government selling off Yosemite Park to pay for the budget. … It's not in the game plan as a community. Land is the building blocks of community. … a lot of people will never have a chance of owning the Hāmākua land. We are the landlords of this land and we have come to claim it. –Resident (In Big Island Video News, 2011)

> When I heard that the mayor wanted to sell the Hāmākua land, my heart went out to the people of the land. The land truly does belong to the people and the people don't want to sell this land. –Resident (In Big Island Video News, 2011)

Local Councilman Dominic Yagong spoke out in opposition to the land sale, advocating for a process of transparency that would allow the community to vet potential buyers. Councilman Yagong walked through different land sale scenarios – from Monsanto purchasing the land to grow genetically-modified corn, to a biofuel plant, to the Mayor implementing a 'terrific' agricultural plan for the property – noting that a vetting process would only increase community

buy-in and support for the County, the process, and any future landowners. Having a transparent process, Mr. Yagong stated,

> …allows the community to hear what's going on so that you could have community buy in. … It not only allows them to participate in the process, but remember County, if we sell this land to a prospective buyer, there is an obligation to us to support that. And it could be something that is totally against what the community would like to see happen… Folks, we need the review. … The land is an opportunity folks, that if we sell it we lose it forever. –Dominic Yagong, County Council member (In Big Island Video News, 2011)

Local residents, posting in online media outlets, also fueled suspicion that agribusiness companies such as Monsanto were interested in the land (Minkus, 2010).

> Why isn't the County planning to lease this land as farmland to local business owners who are crying for this sort of acreage at an "affordable" price? … Rumor has it multi-national conglomerate Monsanto will be bidding on the parcels. –Real Estate Agent (In Minkus, 2010)

> The concern about having transparency as a farmer here in Hawaiʻi is if this goes to a GMO and that GMOs crops cross pollinate with my crops I will be facing a lawsuit from a large multinational corporation with deep pockets and sharks for lawyers who will put me out of business like that. … So if you want to kill small agriculture, permanently on this island, you would without transparency … And if this happens, shame on you and the damage you will have done to this island and the generations to follow. –Farmer (In Big Island Video News, 2011)

Mayor Kenoi disagreed with some of the public comment and reiterated in interviews with local media the reasons behind pursuing the sale. Stressing the sale is about 'fiscal responsibility,' he was disappointed that some County Council members were working on measures that would make the land sales more difficult for the County through a public vetting process.

> Because of the difficult economic times, we proposed selling a portion of the Hāmākua lands that have sat unused for 15 years. … Putting those lands in private hands will allow them to become productive again, which will generate agricultural activity and create jobs for our community. As an added benefit, the new owners will be obligated to pay property taxes on the Hāmākua lands, which will further help balance the county's budget going forward in a challenging economic environment. –Mayor Kenoi (In Hawaiʻi 24/7, 2009)

Despite the outcry from local residents in public meetings who were fearful of potential landowners and unfavorable land use practices, the County Council voted 6-3 to allow the Mayor

to sell the acreage, and in February 2010 it was placed on the market. When the County Council originally voted to approve the land sale in November 2009, the council members were under the impression the sale could yield $8.2 million in revenue to help balance the budget, according to County predictions. However, an independent appraisal found that the acreage was worth less than originally quoted, at $6 million dollars. Despite a $10,000 advertising campaign and land tours with potential buyers, the two attempts to sell the parcels through a sealed bid auction process were not able to attract any offers above the appraised value, a minimum bid required by legislation (Cook Lauer, 2010; Armstrong, 2012). A third attempt to sell the properties was cancelled in April 2010 by the County, with the Mayor stating "we weren't going to give the land away and we weren't going to engage in a fire sale," but instead they would wait until market conditions improved (Cook Lauer, 2010). According to Ken Van Bergen, the County Property Manager at the time, the lack of bids could indicate that potential buyers found the minimum bids set for the parcels too high; the smallest parcel was valued at $216,000 (12.8 acres) and the largest, 110 acres, was valued at $688,000 (Star Bulletin, 2010).

Due to the lack of interest from the public in purchasing the land and tremendous community opposition to the land sales, Dominic Yagong, Hāmākua Council member, introduced legislation on March 15, 2011, to put the Hāmākua lands in Paʻauilo to use through agricultural leases, to require transparency prior to Council approval, and require the administration to provide lease prices. While the measure faced some opposition, in August 2011 the County announced the Paʻauilo lands would be up for bids on long-term, 10-year leases, with a minimum rental price of $11.63 per acre per year. Immediately Mayor Kenoi announced his approval of the process to local press outlets.

> We are pleased to be offering these lands up to the community to put them back into productive agricultural use. These lands have been sitting idle … and we believe putting these lands back into production will provide a welcome boost to our agricultural sector. –Mayor Kenoi (In Hawaiʻi 24/7, 2011)

Councilmembers spoke out at council meetings about the process; however they were not all in support of the decision to lease the lands.

> I'm hoping that we do obviously get some proposals for lease of this property. I think it makes a heck of a lot more sense than trying to sell them outright. – Councilman Pete Hoffman (In Big Island Video News, 2011)

> I'm one of the council men that voted for the resolution [to sell the land] ... I believe it's the right decision. I don't believe the county should be in land banking. It's not our job. We are losing taxes by not selling the land. If I'm not mistaken, these lands are marginal lands with no water. –Donald Ikeda, Hilo Councilman (In Big Island Video News, 2011)

By November, 2011, the County had received 48 requests to lease the land in Paʻauilo, including multiple bids for some parcels. Bidders were prepared to pay the minimum lease rent, meaning the upset prices would go from $1,489 to $12,760 for 10 years of use. According to articles from local news agencies (Armstrong, 2012), Council Chairman Yagong stated "what we fought for all these years was the right thing to do," in reference to his constant demands that the county keep the Hāmākua lands since he was elected by the community in 1996. Van Bergen, the County Property Manager, remarked on the process of leasing hundreds of acres of public land to individual agricultural producers, "because we haven't done this before, I have no idea how it's going to go. [It is] unprecedented for the county" (Armstrong, 2012). The County has retained the right to sell the land in Paʻauilo when the market improves; the Mayor strongly opposed the Council's push to take away the County's right to do so, stating "I believe we need to keep all our options open" (Cook Lauer, 2010). But for now, as of January 2016, the Paʻauilo lands are fully leased to 15 sub-lessees and the County is working to identify additional County land to make available for lease purposes (County official, pers. comm., 2016).

Conclusion

The Hāmākua Agricultural Coop and the Kapulena Agricultural Park are two examples of quasi top-down agricultural projects initiated by the State and County respectively to facilitate the development of diversified agriculture on former sugarcane land. When Hāmākua's plantations closed the landscape was best viewed as 'rural', with few productive agricultural activities occurring while land changed hands. The push to populate the landscape with 1,000 small diversified farms has met several road blocks, but despite the challenges, land-owning institutions and the broader community continue to envision the Hāmākua Coast as the

‘Breadbasket of the State’. While ranching and forestry operations have been able to establish themselves in the Hāmākua area, the success of small farm operations has been varied.

Discussions focusing on the success of diversified agriculture are constrained somewhat by the definitions used to characterize the players and practices in the movement. Definitions of *agriculture*, *farms*, *farming*, *farmer*, *family farms*, and *hobby farms* are fluid and open to interpretation. There appears to be a somewhat steady, yet slow stream of individuals interested in working the land, drawing on a diverse range of land-based practices. Some would interpret these practices as farming, depending on their position in the industry, while others might view them as subsistence agriculture. The Hāmākua Agricultural Cooperative is turning a corner and becoming a more legitimate organization with the majority of sub-lessees actively in *production* on their land, however ‘production’ may not always mean a lessee is selling their crops. Flexibility in the definition of ‘farming’ has allowed less serious commercial and hobby farmers to remain in the Coop, a situation that has facilitated a diverse agricultural landscape in the area while perhaps slowing the growth of commercial-scale agricultural production. Today, the HAC is represented by an eclectic mix of individuals including middle aged and older displaced sugar workers who have successful commercial and quasi-subsistence farms, young farmers who have gained experience in farming by serving as wage laborers or WWOOF volunteers on successful farms, recent newcomers to the islands – amenity migrants – who are interested in pursuing new careers in agriculture, retired first and second generation immigrants who are looking for a way to keep busy, and other residents who are interested in agriculture on a variety of scales.

As the Kapulena Agricultural Park comes online and begins leasing to producers, it will be important to establish clear communication from the onset between landowners and land managers, and between land managers and tenants, to minimize some of the challenges prevalent in leasehold agriculture. One similarity between HAC and KAP is the decision by the landowners, the State and the County respectively, to devolve responsibility for land management to a community entity; in the case of HAC it was a community Coop run by a volunteer board of directors and for the KAP it is the local farm bureau, at least for the ranching component of the Park. While State and County departments may lack the administrative capacity to manage the lands, it is important that the land owning entities work closely with land managers, and discuss the rules, regulations, and expectations for successful land management.

Land leasing in Hawaiʻi will continue to be prevalent due to the predominance of large landowners in the State, the high cost of land, and the number of absentee landowners who want to encourage production on their land. Land that is in use by leasehold farmers is generating revenue for the landowners and providing them with agricultural tax breaks. While leasehold farming establishes a social structure that may slow the success of commercially viable agriculture, as farmers invest less in land that they do not own, it does provide the opportunity for rural places to be actively used by individuals who may or may not be able to afford their own land. Unfortunately, as land prices rise, farmers are priced out of the land market, and even fellow farmers prefer to sell to more affluent rural amenity migrants, than lower the price on their land so that other producers can afford to purchase it to continue farming.

The announcement in January 2016 of the imminent closure of Hawaiʻi's last sugar plantation on Maui is the next example of former sugar cane land being available to the community for agriculture. According to the owners, Alexander and Baldwin (A&B), the 'new diversified model' that will be implemented in its place is to include smaller farms and the development of an agricultural park (HNN, 2016). Perhaps the experiences of HAC, KAP, and other landowners engaged in leasing around the State will provide insight into A&B's process. A thorough understanding of the assumptions and unexpected outcomes that arose from these processes would undoubtedly inform other diversified agricultural initiatives being carried out statewide. And hopefully qualified farmers will materialize to take on the challenge.

CHAPTER 4. CHALLENGES OF AGRICULTURE AND HAWAIʻI'S AGRARIAN FUTURE

Introduction

Labor, land capital, and knowledge were identified as obstacles to developing and sustaining viable agricultural businesses in planning initiatives dating back to 1992. Unfortunately, these four themes were repeatedly discussed by farmers and ranchers during in-person interviews and at Coop and community meetings. This speaks to the fact that farmers are facing similar hurdles to agricultural business development as they were facing over two decades ago when the era of sugar ended and the push for diversified agriculture began. While at the same time rhetoric from local governments and large landowners continues to emphasize the preservation of rural areas, the need for more farmers, and greater support for Hawaiʻi agricultural industry.

Chapter 4 highlights the challenges and coping strategies exemplified in the case studies by Hawaiʻi's diversified farmers, specifically surrounding issued related to labor, land, capital, and knowledge. A farmer's level of agency, their ability to make choices in their environment, is oftentimes constrained by the challenges they face on a daily basis, however many producers in the field area employed coping strategies to overcome barriers to business growth and increase farm profitability. Attention to these strategies provides insight into the opportunities that may exist at the state and local level to facilitate the development of this important industry, particularly in the areas of land management, re-conceptualizing agriculture, and professionalizing the industry.

Diversified Agriculture's Challenges

Finding and Retaining Agricultural Labor

Farmers in this research project identified four primary difficulties in developing a committed labor force: the low availability of skilled laborers, labor retention, providing workers with housing, and attracting new farmers into the profession. One of the most commonly cited problems by farmers is their inability to find an adequate supply of laborers, particularly during strong economic times, as agriculture is an unpopular profession amongst many Hawaiʻi Island

residents due to the status of agricultural laborers, working conditions, and poor wages. In challenging economies, for instance during the economic downturn in 2008, a large pool of workers existed for farmers to access. One farmer remarked that he would run an advertisement and "60 people would respond, and they'd keep calling" (Farmer, pers. comm., 2013). Currently, farmers are struggling to find sufficient labor to meet farm needs, according to an organic grower on Hawaiʻi Island, given the low unemployment rate of 3.2% in December 2015 (pers. comm., 2016). The final report from the Agricultural Skills Panel noted that in Hawaiʻi Island meetings participants described the state of agricultural labor as 'dismal' in 2013:

> There is a lack of both unskilled and skilled labor; pay in the Ag industry is not attractive; labor laws are confusing; seasonal workers are not retainable; and often there are language barriers with migrant workers. In addition, the type of work in agriculture is usually hard and monotonous labor, so workers get tired of the hard work and get bored. (HDOL, 2013)

Most Hawaiʻi Island residents potentially interested in agriculture can find more desirable positions in other industries such as tourism, landscaping, construction, and retail; these positions commonly pay more and have more favorable working conditions. Many farmers in Hawaiʻi rely on their own family members while developing their agricultural businesses, and then gradually hire workers as production and sales expand. Worker retention is a common problem, as noted by a commercial-scale organic farmer interviewed for this project.

> The first three years were hard. I'd run an ad and you might get four or five people responding and if two of them showed up to the farm I'd hire them on the spot. And I'd be lucky if they lasted a week or two. –Farmer (pers. comm., 2013)

Finding people who are serious about working on the farm has been important to some farmers, as opposed to people who are just 'looking for a job' (Farmer, pers. comm., 2013). When a farm operator hires someone from another professional background who has been unemployed for some time, the operator is at risk of losing that employee as soon as a position opens up in their desired industry; "as soon as the next construction job comes along they're gone" (Farmer, pers. comm., 2013).

Squeezed by the high costs of fixed capital (e.g., machinery and land) in Hawaiʻi caused by the state's geographic isolation and the price of real estate (Suryanata, 2002), farmers rely on labor-related coping strategies to increase profitability. Instead of a farm increasing their labor

productivity through farm operation restructuring or labor professionalization, the wage structure remains unchanged, characterized by low labor costs and scant benefits. Small farmers may recruit unpaid labor from family members or volunteer labor programs, such as World Wide Opportunities on Organic Farms (WWOOF) (Mostafanezhad et al., 2015), while larger farms primarily draw from immigrant populations, including individuals from Mexico, the Philippines, and Micronesia (including the Marshallese and Chuukese), the latter of which can travel to Hawaiʻi under the Compact of Free Association. Both small and large farms also rely on the self-exploitation of the farmer owner, as originally conceived of by Chayanov (1986), particularly where farmers struggle to make a viable living from agricultural income alone.

As farms become more economically viable finding labor can become easier and retaining a steady workforce more feasible. Oftentimes start-up farms that have access to volunteer labor will rely on these workers, and transition to paid employees as they become more successful; an organic grower on Hawaiʻi Island remarked that they "started with WWOOFers and then decided it would be better to work with employees and increase their skill level" (pers. comm., 2013). Emphasizing the importance of local workers, a local vegetable farmer stated, "if you want to be consistent in the market place, which is crucial, you have to have a reliable, trained labor force . . . and if you want a reliable, skilled labor force, it's better to work with the local population" (pers. comm., 2013).

Agricultural workers from local communities are typically drawn from immigrant labor populations, particularly for larger farms which require dedicated workers. For recent immigrants their level of English proficiency may prevent them from obtaining work in other industries. "Because of their English skills they are [disadvantaged in Hawai`i's economy] so this [job] is security for them," one farmer mentioned (pers. comm., 2013), "I have one employee that would work seven days a week if I let him." Many farmers expressed ethnic perceptions of laborers when describing their workforce, indicating that individuals of certain ethnic groups worked more effectively than others and that certain ethnic groups preferred different types of farm jobs (e.g., harvesting versus selling at farmer's markets).

> The first group that I got in [here] were Chuukese, Micronesians. Like any group there are good and bad ones; I see many moving out here now. … Now [I have] 3 Micronesians, 2 *haoles* (Caucasians), and 2 local boys … for the most part white people don't know how to work. … I've had good experiences with Latinos… but

> they wouldn't touch vegetables. [T]hey like coffee because it's piece [as opposed to hourly] work. They get paid by the pound and can make $200 to $250 [in] a day and can go home to Mexico and live like kings. –Farmer (pers. comm., 2013)

Famers also struggle to find an adequate supply of skilled laborers to perform more advanced farm tasks such as operating and repairing machinery, and co-managing farm operations. Participants in the Agricultural Skills Panel stressed that there is "a lack of middle-management and farm managers because those workers are going off-island to find better paying jobs" (HDOL, 2013). Professionalizing a farm's workforce by creating mid-level positions and an experienced work crew requires both employees that will remain in Hawaiʻi, and a farm operator committed to investing the time and energy required to educate their workforce. Most diversified crops require reliable, skilled laborers for harvesting to meet high-quality market standards and the expectations of niche markets, and the attitudes of local growers' sour when they hear public officials suggesting farmers rely on unskilled veterans or prison workers to fill their labor needs (Pers. observ., 2012).

Many farms on Hawaiʻi Island that are located in rural areas away from the larger towns of Hilo and Kailua-Kona find it difficult to hire laborers due to the lack of affordable housing outside of these population centers. Owners of fee simple agriculture land are not permitted under the County zoning code to erect worker housing on the property, and leasehold farmers – on land owned by the State, County, and Kamehameha Schools – have restrictions on residential structures and overnight stays on agricultural land, preventing farmers from housing laborers on their farms. While seasonal and migrant workers may be more prevalent in the Hilo and Kailua-Kona areas, vegetable and orchard farmers in the study site had a difficult time finding and retaining employees that were willing to commute to Hāmākua and Waimea. An Hāmākua Coast farmer remarked on his strategy for growth, which dovetailed with labor availability:

> What we have here is we have lots of water … and we have people from the area come work with us then they don't have to travel very far. Then we don't have to worry about farm housing. So the growth of our farm has to do with the availability of people wanting to work with us within the area. We have no aspirations to import labor. So we are community oriented, that is our philosophy. –Farmer (pers. comm., 2011)

This research has revealed various labor-related coping strategies used by commercial and non-commercial producers, including self-exploitation, extended-family networks, agricultural volunteers, and low-paid immigrant workers. All farm groups – experienced farmers, beginning farmers, and hobby farmers – appear to rely on coping strategies to some extent, oftentimes incorporating part-time off-farm work and receiving spousal income and benefits, in order to sustain their agricultural livelihoods and practices; however there are some trends amongst farm groups.

Experienced farmers, many of which are second generation immigrants to the islands from Asia-Pacific countries, have typically relied on family labor, however increasingly their children are migrating off-island to find employment, uninterested in continuing the agricultural work of their parents. Experienced farmers are now forced to hire paid labor, and often resort to hiring recent immigrants or other low-paid workers, which helps to subsidize their production costs. Some farm owner-operators, and upper level managers, work long hours for little to no pay in order to make ends meet and ensure their laborers are paid. An Oʻahu-based farmer said that during times of financial hardship,

> …[upper-level management] have gone as far as not taking paychecks to make sure that [the workers] get paid; my management staff has all done that because at the end of the day they see a bigger picture, that we'll all get taken care of, that we'll all be OK, as long as we stick together as a family. –Farmer (pers. comm., 2013)

Beginning and hobby farmers are commonly entering the industry via niche markets (e.g., organic, value-added) that are capable of paying the farmer a higher price for the product, allowing them easier access to labor, while others rely on self-exploitation, volunteers, family labor, and to a lesser extent on low-paid immigrant workers.

Volunteer agricultural workers have become more prevalent in the U.S. in recent years with the rise in popularity of the WWOOF program. In 2014 Hawaiʻi hosted approximately 2,500 to 3,000 volunteer workers on two hundred farms across the state (Mostafanezhad et al., 2015). Farmers that practice organic agriculture are able to access free workers through the WWOOF program, in exchange for providing them with a place to live and meals. However, if a farmer is on leasehold land, volunteer laborers must be housed at the farmer's residence and

provided with transportation to and from the farm; this poses challenges for leasehold farmers interested in accessing laborers through the WWOOF program. Consequently, many WWOOF volunteers on Hawaiʻi Island are placed on farms in Kailua-Kona where long-term coffee leases through Kamehameha Schools allow for residential use of lease lots. Some participants in the Agricultural Skills Panel, specifically participants from the Kailua-Kona area on Hawaiʻi Island, noted that the availability of WWOOFers has been low which has caused a labor shortage for some Kona-based farm operations (HDOL, 2013). While volunteer agricultural labor programs (e.g., WWOOF) have become a popular solution to high labor costs and low labor availability in Hawai`i, one farmer explained why he prefers hiring local laborers.

> [Volunteers] tend to be here for the interim. What we want to create is a stable society, and I don't see [volunteers] as conducive to a successful business strategy. . . . With [volunteer laborers] you have to give them a place to stay and feed them, and it becomes more of a lifestyle thing than a business. At the end of the day I want to say goodbye to my workers. –Farmer (pers. comm., 2013)

When farmers rely on family and volunteer labor, such subsidizations may hide the real costs associated with farm labor. Consequently, consumers remain ignorant to the true cost of food production, and farmers who provide their workforce with living wages and benefits must compete with those who do not. "At some point," an Oʻahu-based farmer stated, "[Hawai`i's farmers] need to raise the level of what we pay agricultural laborers [in order] to keep them, and [consumers] need to get more realistic about the price of their food" (pers. comm., 2013).

Leasing Agricultural Land

> Your Coop's purpose is to farm, to access this land, and that's not an easy thing in Hawaiʻi. It's not easy to have land to lease out. You own the right to lease land, there aren't any other land leasing coops in the state. …It's a privilege to have access to this master lease. –Technical Assistance Provider (In an HAC meeting, 2011)

The availability of small parcels of land is both an opportunity and a challenge according to planning documents and ethnographic field work. The Hawaiʻi County Food Self Sufficiency Baseline Study (Melrose and Delparte, 2012) noted the small farm trend on Hawaiʻi Island, with 135,000 parcels ranging in size from 0.5 to 20 acres, covering 200,000 acres of agricultural land. The report suggests that "these lands provide an opportunity for small landowners to engage in

small-scale farming and backyard gardening" (Melrose and Delparte, 2012); this report however was focused on increasing food self-sufficiency, not necessarily on increasing the economic viability of agricultural operations. This suggestion was echoed by members of the Hāmākua Agricultural Cooperative, which are almost 50% part-time farmers, as they expressed desire for smaller pieces of land, less than five acres, particularly for new and beginning farmers.

While many respondents in the field area felt that lease land gave them an opportunity to become a farmer, others described the existing land tenure relationships in Hāmākua District as restrictive to commercial farming: "in some cases the inability to buy agricultural land impedes farming/ranching ventures" (COH, 2015). Due to the challenges of purchasing farmland in Hawaiʻi, many farmers, particularly on Hawaiʻi Island, seek leases through large land managers, including the State and County government, Kamehameha Schools, W.H. Shipman Limited, Edmund C. Olson Trust, and others. Lease options from large landowners may require considerable paperwork, have lengthy eligibility requirements, and have cumbersome restrictions, however the abundance of land available through these owners and their affordability are attractive to island farmers. If farmers are looking to start or expand their farms in a particular geographic region, they may seek lease options from private individuals who are not actively engaged in agriculture and looking for a tenant to keep the land in production and maintain its agricultural status with the County tax department. Leases through private individuals are more difficult to acquire due to their limited availability, and a farmer must be dedicated to researching available parcels through diverse means (i.e., word of mouth, newspapers, Internet listings, agricultural organizations). Lastly, if a farmer is desperate for land they may seek sub-quality leases where the condition of the land is poor (e.g., rocky, on a slope, at an undesirable elevation for the desired crops) and attempt to rehabilitate the land through soil amendments or switch to crops that are best suited for that geographic area; this is an undesirable option due to the high costs associated with soil improvement and the lessees land tenure relationship.

There are benefits and drawbacks to leasing land for agriculture – for both the owner and the lessee – typically depending on the land owner's rules governing the lease and the terms of the lease, including the tenancy rate. Short-term leases, under five years, limit a tenant's financial risk, while allowing farmers to test crops, locations, and markets without making a long-term

commitment to an area or a project. For those just beginning to farm, leases provide individuals with the chance to test the viability of their business plans and provides them with a window in which to explore a career in agriculture before they make a longer-term commitment. Disadvantages to short-term leases include the inability of farmers to build equity in the land, limited ability to control or plan for the land and improvements, and the risk of losing infrastructure investments upon termination of the lease.

The primary advantage of longer-term leases is that they provide farms with more security, allowing farmers to invest more in the business and resource stewardship, particularly soil health. The most recent County report (COH, 2015) identified that long-term leases allow a farmer to "justify investments in the soil and infrastructure and to plan for and mitigate risk." Leases upwards of ten years allow farmers to realize the useful life of improvements made to the leasehold, including irrigation work, wind breaks, and earth moving projects. Longer-term leases also provide farmers with more time to build relationships in the community and establish trusted markets. Longer lease terms are typically required by financial institutions that provide loans to producers when the lease value is used for security. And in some instances land leasing can be a preliminary step towards land ownership by providing farmers with affordable land while they build their business and save money towards the purchase of a property, or by introducing them to a private landowner who may one day decide to sell the land. Lastly, a disadvantage of both short- and long-term leases is that tenants are commonly forced to plant annual crops or crops with higher turnover rates, versus fruit trees, coffee, macadamia nuts, or other orchard crops that take longer to mature and will remain with the land upon termination of the lease.

The most common drawback of leasehold farming in Hawaiʻi is the inability to live on lease land, particularly lease land from Hawaiʻi Island's large land managers, including the State, County, and Kamehameha Schools. The Agricultural Skills Panel final report stated that the inability to live on lease land has been "a long simmering issue due to agriculture theft and vandalism on farm lands" (HDOL, 2013). Small landowners are more likely to allow tenants to live on the farm, as land is typically rented with existing structures. It has been the experience of some members of HAC that when individuals are not allowed to live on lease land, they must live elsewhere and travel to and from their farm. This often results in the farmer taking a wage job close to their place of residence to cover their housing costs, and subsequently engaging in

farming as a hobby or part-time commercial activity, due to time, labor, and financial restrictions. Additional drawbacks to land leasing can be landowner limitations on structures for equipment and input storage, insurance requirements, restrictions to farm in a specific manner (e.g., crop rotations, organic, livestock restrictions) and to acquire conservation and waste management plans, or to be in full production within a specified timeframe. Land leased through these institutions typically lack fencing and storage structures, two capital improvements that are commonly required by tenants; fencing is necessary prior to planting initial crops due to the prevalence of wild boars in most of Hawaiʻi's agricultural areas, and storage is necessary for equipment to prevent theft. In Hawaiʻi, fencing alone can run a farmer upwards of $2,000 per acre, and permitted structures – where allowed by the land owner – require building plans from architects that may cost over $1,500. Many leasehold farmers work around lease restrictions by investing in portable trailers or semi-movable greenhouses to provide on-farm infrastructure, while others build illegal structures in hopes that they will not be discovered by the land owner.

Funding Agriculture

> If the farmer makes money, the farmer will farm. –Farmer (pers. comm., 2011)

Subsidies have been used as a tool to support the agriculture industry nationwide for decades. In Hawaiʻi, where farmers are faced with high production costs, government support for the industry is important. A successful small farmer on Hawaiʻi remarked in response to a Hawaiʻi Island cooperative receiving assistance in infrastructure development, "I don't know how farmers survive without government help [in Hawaiʻi]" (pers. comm., 2015). The development of agricultural infrastructure is one area where state and county support is critical. Collaborative relationships between local government, community organizations, and farmers can help address capital needs related to post-harvest processing and product distribution.

The State of Hawaiʻi provides funding for vegetable-based operations on Hawaiʻi Island, particularly the Hāmākua Agricultural Coop in Honokaʻa and the Kamuela Vacuum Cooling Cooperative (KVCC) in Waimea. HAC receives state support in terms of land and water access, while KVCC was provided with a post-harvest warehouse which houses a cooling chamber that farmers use to remove the field heat from vegetables prior to storage and inter-island shipping.

Both HAC and KVCC are located in one of the 11 'core crop lands' on Hawaiʻi Island, where 94% of all existing crop lands in the County are located (Melrose and Delparte, 2012). Investments made in core areas, the authors suggest, will more likely facilitate agricultural development by reaching established farmers:

> [T]he Core Crop Lands approach… focuses collective attention on the ground where farming is taking place, and on the existing conditions that make farming feasible. … These are the lands from which additional food self-sufficiency is most likely to emerge because it is where the conditions that support sustained agriculture already exist. … Understanding the unique challenges that each area faces will help to inform the kinds of investment and public policy supports needed to drive new farm activity. (Melrose and Delparte, 2012)

The County of Hawaiʻi actively supports agriculture through budgetary funding and via annual economic development grants to non-profits that carry out food-related programs or who are working with agricultural businesses in the county. Priority areas for county funding for agriculture include innovative research, marketing and promotion of agricultural products, farmer training and skill development, initiatives focused on adding post-harvest value to farm products, and information dissemination. Through personal employment at a local non-profit, County grants were obtained during the research period to develop farmer training programs in Hāmākua and to assist an agricultural coop in Waimea with food safety and energy efficiency planning. The State and the County have also been active in supporting the Hawaiʻi Island Meat Cooperative, a group of small-scale livestock producers working to launch a mobile slaughter unit on the island. While Hawaiʻi Island has two slaughter houses, their capacity to process sheep, goats, pigs, and chickens is limited. The mobile slaughter project would not have been feasible without the State Department of Agriculture's support, as the individual cooperative members lacked sufficient capital to purchase the unit (Coop developer, pers. comm., 2015).

Unfortunately, State and County support has not been drawn on to adequately establish certified kitchens for post-harvest and value-added processing. Value-added food producers – including makers of jams, jellies, salsa, sauces, and dressings – are impacted by Hawaiʻi's policies on food safety and the use of certified kitchens; producers that do not have access to a certified kitchen are limited to producing certain products and to direct-to-consumer sales, primarily at farmers markets. When markets are limited farmers have a hard time earning

sufficient revenues to build a certified kitchen on their property. Additionally, the existence and availability of commercial kitchens is limited, with Hawaiʻi Island lacking facilities in both the districts of Puna and Kailua-Kona. Where facilities do exist, many food producers find long waiting lists and expensive hourly rates for kitchen usage (Food producer, pers. comm., 2014).

Farmers in the study area employed two coping strategies to address capital deficiencies, including the formation or development of cooperative relationships, and seeking technical assistance from organizations skilled in accessing capital. In Hawaiʻi where the costs of agricultural inputs are high, farmers can realize financial benefits by utilizing cooperative networks and organizations. Cooperatives have been a common means for farmers to cut costs by collectively sharing the financial burden of inputs and infrastructure. Cooperative relationships provide farmers with options in equipment sharing, bulk purchasing, shared processing and distribution, and marketing. While the fastest way to increase the state's food production, according to one Oʻahu-based farmer, is to encourage large established farmers to acquire additional land and ramp up production, there remains a role for the small farmer through cooperative business practices.

> Small farmers are going to take a longer time to [contribute to an increase in food production] and it will be harder for them to do it, but [agricultural] coops are going to be really key in going forward [for the smaller farmers]. –Farmer (pers. comm., 2013)

The 2015 Community Development Plan for Hāmākua stressed the value of cooperatives to reduce costs, stating that "the lack of cooperation can hinder opportunities to learn best practices … engage in reciprocity activities between businesses, and employ collective marketing strategies" (COH, 2015). During the research period, Hāmākua Agricultural Cooperative explored both cooperative processes and technical assistance to address the needs of the organization and its members. Members of HAC realized benefits through the bulk purchasing of inputs, engaging in plant trials, and sharing processing and marketing expenses at a local post-harvest facility and farmer's market booths. HAC also utilized its position as a cooperative organization to acquire grant funding from the United States Department of Agriculture, the University of Hawaiʻi, and the State Department of Agriculture. Grant monies were used to complete a business and marketing plan for the Coop, purchase processing equipment for the

food hub, and develop marketing materials (e.g., website, logo, and merchandise). In my role as a business developer, I assisted HAC's general manager with the writing and execution of three grant projects and completed the Coop's marketing plan.

Today many farmers seek grant funding from government, non-profit, and private sector organizations. While competition for these funds is high, technical assistance providers can assist growers and increase their likelihood of success. Grant funding is typically preferred by new farmers exploring unique agricultural projects, while experienced farmers with steady revenue streams prefer loan programs. The drawback of grant funding is that it typically comes with strict reporting requirements and limitations on the use of funds; for example, grant funds commonly cannot be used to purchase equipment, vehicles, agricultural inputs, or support infrastructure development. The preparation of grant applications and adherence to reporting requirements is oftentimes challenging for first time grant awardees. Loan and micro-lending programs on the other hand can be accessed year-round and can be used to cover a diversity of costs; however they oftentimes have strict eligibility requirements that may make it more challenging for smaller farmers to qualify.

Several innovative capital development programs, specifically for farmers and food producers, have been initiated during the research period, by large land owners, private firms and non-profits, and federal government agencies. Kamehameha Schools implemented Mahiʻai Match-Up in 2013, an agricultural business plan contest, to provide land and start-up capital to successful farmers and entrepreneurs. Winning applicants receive an agricultural lease from Kamehameha Schools with up to five years of waived rent and $35,000 in financing to "increase their long-term chances of sustainability" (Pauahi Foundation, 2016). In my position at The Kohala Center I reviewed business plans for Mahiʻai applicants and assisted winning teams with grant applications to further develop their business ideas. According to KS land managers (pers. comm., 2014) this program allows KS to focus on preparing a few lease parcels on each island for winning applicants (e.g., mowing and land preparation) and helps guarantee the success of KS lessees. Unfortunately, as a new program, individuals experiences with it have varied with some lessees waiting upwards of six months post-award to be assigned land (Farmer, pers. comm., 2015). In 2013 Kamehameha Schools sponsored Hawaiʻi Investment Ready (HIR), a pilot program founded by Social Impact International. The HIR program is designed to provide

entrepreneurs with training in business and financial planning, marketing, communications, and leadership. At the end of the program participants compete for $75,000 in investment capital to launch or sustain their businesses. New and beginning farmers and food businesses appear to be particularly attracted to these opportunities offered by KS, and many awardees have successfully received funding from additional agencies thereby increasing the likelihood that their business will succeed.

Several microloan programs have surfaced in Hawaiʻi during the research period, including The Kohala Center's Kahiau Business Development Microloan Program, Feed the Hunger Foundation's microcredit program, Farm Service Agency's Microloan Program, and the Hawaiʻi Food Producers Fund (HFPF), formerly called the Hawaiʻi Island Food Producers Fund (HIFPF). Each of these programs have been utilized by farmers on Hawaiʻi Island that participated in this research, allowing them to access small amounts of capital ($5,000 to $35,000) for their agricultural businesses. The HFPF is part of a partnership with Kiva, an online crowd lending platform, and was originally launched with County funds; however, during summer 2016 the Hawaiʻi Department of Agriculture invested in the program, making it available to farmers and food producers statewide. Other farmers in the study site sought out or received funding from Whole Foods Market's Local Producer Loan Program and Ulupono Initiative, two companies located on Oʻahu that support agricultural efforts in Hawaiʻi. And lastly, some farmers are successful in receiving funding from angel investors, based both in Hawaiʻi and on the U.S. mainland, who have connections in the state and are interested in making on-island investments in local businesses and supporting the growth of Hawaiʻi's agricultural industry.

Access to Knowledge

Many farmers enter into the profession with a love for the outdoors and an interest in growing food, but lack some of the administrative skills needed to run a successful business, including managing their finances efficiently, utilizing online production planning, business and market planning, or handling payroll. When farmers lack the ability to professionalize their operations using these tools, it can limit their ability to grow the businesses. Numerous community and county planning efforts called for the increased development of small business

training opportunities for farmers, primarily focused on accounting and financial management, accessing capital, farm management, and manpower training (COH, 2015). Farmers that have informal business management styles may be less capable of accessing capital, as lending institutions typically require borrowers to have a business plan, including financial records and projections. Additionally, farmers that lack the business know-how to track finances and make projections may be limiting their earning potential by failing to examine the cost-benefits of different growing strategies or market possibilities. A prominent Hawaiʻi Island chef emphasized the level of patience needed by produce buyers in Hawaiʻi due to the business acumen of local farmers; "They're good at growing things but most of them aren't great business people. In general, that's not where their area of expertise lies. … [W]e have to have patience" (pers. comm., 2013).

Government and non-profit programs have recognized the challenges facing many farmers in formal business planning, conducting market research, and financial recordkeeping and have begun to offer technical assistance at low or no cost to farmers; however most non-profits lack the capacity to meet the demand from local farmers for these trainings. Additional topics for inclusion into training and technical assistance programs include farm and employee management (e.g., time management, work ethic) and marketing basics (HDOL, 2013). One of the most frequently mentioned challenges by produce buyers was the inability of Hawaiʻi Island farmers to consistently provide the desired amount of product and communicate consistently and effectively with buyers (Elevitch et al., 2012). Buyers emphasized the need for farmers to sell themselves and their product, and inform buyers when harvests fell short of demand.

> Respond to [buyers] promptly, don't string them out. Don't leave anyone hanging. If you are going to be short on a product let them know ahead of time so they can make up the difference elsewhere … that is part of being an honest, forthright business person. The shysters don't last very long around here. –Produce Buyer (pers. comm., 2013)

Produce buyers interviewed on Hawaiʻi Island frequently stated that few farmers approach them to advertise their product; "Other than [farmer X] and [Farmer Y], I haven't been working directly with any farmers; a lot [of farmers] feel intimidated coming to see me and they have a defeatist attitude" (Produce Buyer, pers. comm., 2013).

The disconnect between resident's desires to farm and the reality of being a farmer was mentioned often by interviewees, farmer training students, and state and county officials. One participant at the Workforce Development Skills Panel (HDOL, 2013) requested that a primer be developed for new farmers to "lessen the disconnect" between the desires of individuals starting a farm and the reality of the hard work involved in doing so (HDOL, 2013). A University of Hawaiʻi extension staff on Molokaʻi has developed a self-assessment tool that is provided to farmer training participants encouraging them to consider their personal suitability to a farming lifestyle. The assessment, entitled 'Do you have what it takes to be a farmer?' (Teves, 2004) is intended to open individual's eyes to the level of personal dedication, skill, and resources required to run a successful agricultural business. Due to the limited success rate of farmer training programs in graduating individuals that go into commercial scale production, extension agents have begun advocating for gardening programs, versus farmer training programs, to slowly introduce Hawaiʻi's residents to the concept of working the soil. "We're trying to create farmers and I think we need to aim lower," stated an extension agent, "[we need to think about] creating gardeners that then become farmers" (pers. comm., 2015).

The Plan for the Hilo Hāmākua Coast called for enhanced opportunities for "positive social interaction, interpersonal support, sharing of cultural wisdom, and lifelong learning within local communities" (Kramer, 2000). To address the need for knowledge sharing, the Plan recommended the creation of small business incubation facilities in each island district that could host start-up companies, serve as a venue for technical assistance, and include cost-sharing on office equipment and supplies (Kramer, 2000). The call for business incubation centers was somewhat ahead of its time, as few existed in the early 21st century. Oʻahu currently houses the Pacific Gateway Center, providing a culinary kitchen incubator, a bottling facility, a training café, and technical assistance to immigrants, refugees, and low-income residents. Hawaiʻi Island is in the process of developing these facilities for agriculture and value-added producers through local non-profits and the County of Hawaiʻi has a business center available to local residents at their Kona office. Community kitchen facilities also serve as business incubation centers, providing facilities for companies to wash, pack, and process value-added products, however the availability of these facilities across the island is severely limited.

Lessons Learned: Ideas on Hawaiʻi's Agrarian Future

The Management of Agrarian Projects

> [L]ike most modern historians, we have a special fondness for stories that convey a sense of irony, because irony best expresses our sense of the multivalent complexity of the world. It reflects one of the central insights our field explores, which is that whenever people act to change the natural world, the ensuing story has unexpected endings. … This in turn suggests a deeper moral still about the incompleteness of our knowledge of the world and the unexamined assumptions we have made about it. (Cronon, 1992)

Any project, whether initiated by the government or private citizens, will result in intended outcomes and unintended consequences. Agricultural projects, because of their dependence on the natural environment and their relationship to market forces, are particularly susceptible to unintended consequences. Through an exploration of land-based projects and planning initiatives, this research attempted to highlight both the outcomes and consequences of such efforts and the insights they provide into the development of diversified agriculture in Hawaiʻi.

Large landowners in Hawaiʻi are faced with both tremendous opportunities and challenges in land management. As the two case studies illustrate, government landowners in Hāmākua have chosen to implement community-based agricultural initiatives in an attempt to spur diversified agriculture, utilize former sugarcane land, and increase economic prosperity in the community. The Hāmākua Agricultural Coop and the Kapulena Agricultural Park are both unique endeavors for the State and the County, first-time experiments in community-based land management and agricultural parks; in effect both are best seen as projects that are "seeding social change without controlling it precisely," a phrase Tania Li (2005) used to describe the World Bank's conservation and development efforts in Indonesia. Due to the combined goals of collecting revenue from the land and managing land in accordance with their mission statements and strategic plans, the best large landowners can do in some respects, is attempt to seed change.

An examination of the intended and unintended outcomes of the Hāmākua Agricultural Cooperative and Kapulena Agricultural Park and Paʻauilo lands projects yields lessons that can be learned ahead of future community-based agricultural projects to facilitate their success. Many of the intended outcomes for the HAC and KAP are similar; with KAP in its infancy it is

too early to determine if the Park's intended outcomes will come to fruition. The anticipated outcomes of the projects are threefold: (1) land previously used for sugarcane is available to the public at an affordable rate; (2) the Coop and the Park provide opportunities for individuals, including displaced sugar workers, to engage in agriculture, expand backyard and small-scale operations, and to earn an income in their existing community; and (3) the devolution of management authority to a community-based organization may serve to ease the workload of the landowner. The first two outcomes were stated goals of the State when HAC was created, and the third has been implied due to the nature of the established Coop organization and through informal conversations with research participants. For KAP, the piecemeal devolution of authority, to date, has facilitated the development of ranching opportunities in the Park and relieved the County of some of their responsibilities for managing the property; it is anticipated that the diversified agricultural lots will also be successfully managed by an outside entity (County personnel, pers. comm., 2015).

Cronon (1992) reminds us that as we work to implement change we will be met with 'unexpected endings.' The unintended consequences resulting from the implementation of HAC and KAP have been both positive and negative. The positive consequences of the projects include (1) the preservation of large, intact pieces of land has helped maintain the island's rural character; (2) the development of HAC created a network of like-minded individuals; and lastly, (3) HAC has positively influenced individual's livelihoods and lifestyles perhaps more than the HDOA could have anticipated, giving members an added purpose in the community and economy, and providing their lives with more meaning and fulfillment (Coop member, pers. comm., 2013). While there have not been many negative consequences associated with HAC and KAP, those that exist present considerable challenges for Coop members. These include the misuse and non-use of leased land; the abuse of power by cooperative members; the location of the HAC and KAP lands, far from processing and distribution centers and markets, posed challenges for efficient production and marketing; and ultimately that community-based land management hindered the Coop's success.

Areas of high crop production on Hawai'i Island are characterized by having processing and distribution centers, farmland that is relatively flat, a reliable water source, fee-simple ownership or long-term lease agreements, and in most cases farmers in the area employ a labor

force that lives nearby the farms where they work. Given these realities and the opinions of island producers and others interviewed through this project, it is possible to develop a wish list, or a to-do list, for future agrarian projects.

The provision of post-harvest processing facilities by landowners is critical to enhancing the value of farmer's crops. Food safety rules stipulate water quality standards, sanitary wash-pack facilities, and adequate cold storage that necessitate structures that most leasehold farmers cannot afford or are not allowed to construct on lease land. For vegetable production it is important that the land is relatively flat; where lease lots are located on hills, orchard production may be more feasible, unless earth work can be done to render the land more usable for vegetable crops. A reliable irrigation source is important due to Hawaiʻi's hot, windy days. While most of the farmers in HAC have access to the Hāmākua Ditch for irrigation water, some lease lots require farmers to build their own catchment systems or set up expensive systems to pump water uphill from the Ditch. At the KAP, installing a water catchment system has slowed down the project significantly. Landowners and land managers must work closely with lessees to design leases that take into account the background, goals, and capabilities of each farmer and the resources available through the lease to facilitate production. Long-term leases should be provided to growers whenever possible to allow lessees to make investments in the property and their businesses to increase its viability (e.g., wind breaks, soil improvements, irrigation). Where lease land is located far from population centers, government-initiated agricultural projects should make provisions to allow for affordable farmworker housing near farmland or nearby in surrounding communities.

Re-conceptualizing and Re-defining Agriculture in Hawaiʻi

The individual and collective pursuit of agriculture as a lifestyle, livelihood, and industry is replete with values and visions that drive people forward; for this reason agriculture is so often the focus of community planning initiative. Rarely do we see individuals speaking passionately about saving the construction or retail industries in the same way that we see farmers and non-farmers alike pushing for the preservation of farms, farmland, and farming communities. As farmers speak about the challenges they face while trying to succeed in their agricultural

initiatives, it has become clear that the individuals we speak of as ‘farmers’ are a diverse mixture of individuals with unique backgrounds, intentions, and approaches. Familiarizing ourselves with the changing demography of rural areas and farming communities in particular, necessitates that we reconsider traditional definitions of farmers, farming, and agriculture – specifically in a Hawaiʻi context. It is no longer acceptable to view rural areas through the dichotomous lens of farmers and non-farmers; we must expand our understanding of rural areas to consider the diversity amongst farmers themselves.

There is a need to embrace the multiplicity of agricultural livelihoods and lifestyles within our conceptualization of agriculture to allow for the growth of new social and economic movements in Hawaiʻi’s rural areas. Rural residents increasingly live hybrid lives, whereby their engagement with agriculture might look different – in terms of their operational scale, labor configuration, time commitment, and their income percentages derived from agriculture – and consequently agricultural and farmland preservation tools must be designed accordingly. If we rework how we define farmers and agriculture to have more flexibility, we quickly see that we might need to also rework some of the policies and planning tools we have in place to encourage diversified agricultural production. Farm and farmland preservation tools that are being used on the U.S. mainland that primarily focus on zoning and tax structures, are useful in supporting agricultural businesses, but alone they will not be able to develop and expand Hawaiʻi’s commercial agricultural industry.

New approaches are required if Hawaiʻi is committed to the success of its diversified agricultural industry. Ultimately this challenges notions of development because the focus shifts towards the meanings associated with the practice of agriculture and not necessarily the income that is derived through production. Creating a diversified agricultural industry may require that land managers and landowners examine their role in managing their land and how policies and rules should be best designed to support diverse agricultural livelihoods. For example, given the median size of Hawaiʻi’s farms is approximately six acres, the likelihood is low that the majority of the state’s farmers will develop agricultural businesses where their primary source of income is derived from farm activities. It is likely that off-farm employment will continue to subsidize agricultural livelihoods in Hawaiʻi, and may become a more important factor in the success of the industry, at least for small farmers. State and county governments might consider revising

existing policies that require that leasehold farmers derive over 50% of their income from agricultural goods; eliminating the income parentage or lowering the percentage would better capture the reality of many of the leaseholders currently on government-owned land.

Professionalizing Hawaiʻi's Agricultural Industry: A Key to Industry Reproduction?

> In order to overcome some of [the challenges that farmers are facing], participants [in the Agricultural Skills Panel] suggested incentivizing work. By engaging workers in the whole process and not just one aspect, it may make the job more meaningful. (HDOL, 2013)

Ultimately, the expansion of the commercial agricultural industry on Hawaiʻi Island, and in Hawaiʻi in general, hinges on the ability of "the farmer to make money," a quote often repeated by a successful farmer on Hawaiʻi Island. If farmers cannot access the land, labor, capital, and knowledge they require to build agricultural operations that are stable and viable, the farmer will likely cease farming. Throughout the course of this research project two of the largest and seemingly most successful farms on Hawaiʻi Island announced that they would be closing their operations due to rising costs of production and the difficulty of finding labor and sufficient land for vegetable farming. Currently the agricultural industry is not capable of reproducing itself; the economic conditions required for agriculture to recur are not being continuously created. Fixed and variable costs are getting higher, and global competition for agricultural products continues to challenge the ability of local growers to obtain a profit for their goods. While demand for local food rises slowly, Hawaiʻi's growers are still faced with economies of scale that limit their production potential and variable access to land, labor, and capital that hinders their expansion.

The overwhelming majority of farmers are not making sufficient returns to send their children to college, or to encourage their children to stay or return to the farm to continue its legacy. While businesses in Hawaiʻi's urban areas complain about the 'brain drain', with many of Hawaiʻi's brightest individuals relocating to cheaper and more promising cities on the continental U.S. (Keany, 2014), Hawaiʻi's farmers are also experiencing a labor drain, as the children of first and second generation immigrants leave the farm to pursue opportunities in more lucrative careers. In order for farmers in Hawaiʻi to develop viable agricultural businesses, gain a

competitive advantage in the marketplace, and begin to reproduce themselves, farmers must professionalize their operations by restructuring their labor force to incentivize farm employment and retain workers, and by seeking training in advanced business skills (e.g., marketing, business planning, accounting, labor training and management).

Farmers are entrepreneurial by nature, typically adopting organizational styles that may be informal, where responsibilities are less defined and operations are tracked in rudimentary systems. When farmers professionalize their businesses – for example by adopting more formal management styles, incorporating electronic record-keeping and accounting, employing online ordering and product tracking – it provides them with the opportunity to analyze their business' success and to think creatively about future growth. Professionalization can be done through courses in leadership and business planning and management, and by more informal means such as mentoring keen workers who are likely candidates for higher level positions on the farm. As Hawaiʻi's farmers continue to operate in a competitive environment, there is a need to "help grow farms into enterprises with mastery of their markets and the ability to produce strategically" (Melrose and Delparte, 2012).

Farmers and other individuals in natural resource occupations are very independent by nature, a personality trait that can work against them as they try to professionalize their businesses. The Hāmākua Community Development Plan (COH, 2015) identified the failure of farmers to cooperate with other local farmers, their supply chains, and their customer base, as a significant obstacle to learning best practices and employing collective strategies to increase marketing opportunities and reduce costs. Likewise, when farmers are not collaborative with their employees, when they view laborers as 'hired help' who are incapable of handling more sophisticated business-related tasks, this underestimates the learning potential of workers and can fail to elevate farm businesses. While farmers complain about the lack of skilled labor to filled upper level positions, oftentimes farmers can be hesitant to work with existing workers to train them into these positions. As owner-operators age, if their children are not interested in taking on the family farm, these owners might need to turn to their employees to help manage and eventually buy out the business. Consequently, it can behoove an owner-operator to invest in comprehensively training existing staff. Moreover, when workers are trained in multiple aspects of farm operations, it can increase worker's feelings of job satisfaction and serve to facilitate

labor retention. A local agricultural business in Hāmākua has embraced this concept, and staff is trained to work in all of positions, so that if someone is sick there are other employees who can fill in as needed; employees also developed a greater respect and understanding for other roles in the company (Business owner, pers. comm., 2014). Some farmers rely on spouses or another employee to handle business finances, marketing, and other non-production related tasks, and this division of labor has worked well for many Hawaiʻi Island farms. Ultimately, farm owners or another dedicated employee or family member must be willing to take steps to professionalize the business and commit to seeing it through.

Conclusion

Agricultural discourse – as expressed by politicians, state and county planners, community members, and farmers – plays an important role in driving policy and planning for diversified agriculture. Leading up to and following the decline of Hawaiʻi's sugarcane industry, communities took place in planning processes designed to understand resident's visions for rural areas, and identify opportunities and challenges in building the capacity of the state's diversified agricultural industry. The island-wide community visioning process carried out by community-based organizations and the County following the closure of the plantations captured resident's hopes for Hawaiʻi's rural landscapes. These visions were overly optimistic in terms of the success of Hawaiʻi's farmers and local food economies, believing that small diversified farms would soon populate the countryside, employ significant numbers of local residents, spur economic growth in related industries, and significantly reduce Hawaiʻi's dependency on imported food. Likewise, discourse from large landowners in the field area emphasizes the importance of preserving rural land for food production and developing Hawaiʻi's agricultural economy. With each new political representative that is elected and each new strategic plan that is created, we see an overwhelming emphasis on food production; an emphasis that appears out of step with the local realities of farming and food production.

While major landowners have worked to make land available for farmers across the state, the industry continues to move at a slow pace towards capturing a greater percentage of the state's GDP. Hawaiʻi's agricultural producers continue to be impacted by the same challenges

year after year, exacerbated by fluctuating oil prices fluctuate, and local economic and employment conditions. The availability of affordable lease land has facilitated the development of some agricultural businesses, preserved Hāmākua's rural landscape, and shaped East Hawaiʻi's communities. However the extent to which it has fostered an agricultural industry remains a question. Where state and institutional support for agriculture has gone beyond access to land – through the provision of capital and post-harvest infrastructure, for example – agricultural livelihoods appear more viable. As the realities of practicing diversified agriculture are becoming better understood, hopefully our expectations for Hawaiʻi's farmers and for a self-sufficient agricultural economy are likewise becoming more realistic.

CHAPTER 5. RETHINKING AGRICULTURE AND RE-CREATING A LOCAL FOOD INDUSTRY

This research attempted to highlight the contradictions prevalent between Hawaiʻi's agrarian discourse and agriculture in practice. The project investigated institutionally-driven agricultural projects on Hawaiʻi Island initiated following the collapse of the state's sugarcane industry; diversified agriculture planning initiatives; and finally, the situated practices of agriculturalists in Hawaiʻi's new rural countryside. While this research highlights that the development of a diversified agricultural industry in Hawaiʻi has not been easy, considerable progress has been made in increasing demand and support for local products. The industry has made some headway as the number of fruit and vegetable farms has increased and the acreage in vegetable production has grown, albeit on smaller and smaller farms. The diversified agriculture movement has provided residents with the opportunity to engage in agriculture, primarily on leasehold land. State and county-initiated agricultural programs have provided communities with a degree of community-based farmland management and facilitated the development of farmer networks. Civil society is working to support the industry through the development of beginning farmer and rancher training programs and other agricultural initiatives. And as knowledge increases about the health and economic benefits associated with locally-grown food, residents are finding a greater selection of Hawaiʻi-grown produce in grocery stores and farmer's markets.

Diversified agriculture is a new industry in a state dominated by 'big ag' for 150 years; in some ways it began as a socio-political project following the decline of the sugarcane industry in the islands, however it is gaining ground and increasingly becoming a material project of Hawaiʻi's farmers. Consequently, there has been the need to continually engage in conversations with practitioners and industry stakeholders to determine the best ways to move forward given farmer's experiences, coping strategies, barriers to success, and opportunities for growth. Evidence of these conversations appears every five years or so during community planning initiatives. The fact that this conversation has continuously taken place in Hāmākua District since Hāmākua Sugar Company ceased operations in 1994 is no surprise, as the same challenges and barriers to success in agriculture have been repeatedly mentioned in planning documents dating back to 1992. However, because of these industry challenges, the success of socio-political

agricultural projects will vary, and the implementing landowners must look to the lessons learned from existing projects and the experiences of farmers themselves.

New global configurations in the agro-food industry over the last few decades have dramatically changed the face of agriculture in Hawaiʻi, altering its importance to the state's economy and shifting resident's relationships with land. In spite of the growth in Hawaiʻi's diversified agriculture industry since the closure of the plantations – with reports of a 50% rise in the percentage of total farm production in 1992, to almost 70% in 2000 (Leung and Loke, 2002) – the industry continues to be dominated by export products, including seed corn, livestock, and fruit and tree nuts (FAS, 2014; NASS, 2013). While the diversified agriculture industry is growing, the success of achieving state and county food self-sufficiency goals continues to fall out of reach. Unfortunately today's industry is characterized by an aging population with the average age of farmers increasing since 1997, operating on less acreage (23% less in 2012 as compared to 1997), with the majority (78.4%) earning annual incomes below the poverty level in 2012. And while the number of vegetable farms is increasing, vegetable sales continue to account for a low percentage of overall farm sales, at just 4.7% in 2012. Boutique livestock operations are enjoying greater success; however many of Hawaiʻi's dairies and small livestock operations have ceased production, unable to compete in today's global food market.

This research highlights the need for a real demand for agricultural land (by farmers) and agricultural products (by consumers) in order for an agricultural industry to be sustained on the landscape; socio-political projects and discourse alone cannot guarantee the success of a new diversified agricultural industry, although they can be important first steps in fostering one. Building a diversified agricultural industry from the ground up is not a project that can be accomplished overnight; as Bebbington reminds us, "more viable livelihoods will not be romanced into existence" (Bebbington, 2000). Developing the needed agricultural infrastructure, human and technical capacity, consumer demand for locally-grown food, and ultimately a consistent supply of agricultural products will take decades. Given Hawaiʻi's unique geography, with diverse capabilities for agriculture and market opportunities spread across the island counties, it is important that collaboration takes place between the state and county governments, and Hawaiʻi's voluntary and non-profit sectors. A systematic assessment of the needs of the industry in each county would identify priority areas for state and county funding policies, and

more consciously articulate engagement opportunities for the private and non-profit sectors on each island. The widespread dismissal of state and county governments as productive agents of support and change for the agricultural industry serves to stall conversations on how local government can best assist producers (Lake, 2002). The State and counties have shown they are supportive of Hawaiʻi's diversified agricultural industry and they will play an important role in its future development. Unfortunately, most of the solutions – professionalizing farming businesses, labor training, farmworker housing, increasing access to capital, etc. – are not easy, quick fixes, but will require collaboration between government, non-profit, and the industry itself.

The discourse surrounding diversified agriculture has been influenced by Hawaiʻi residents who hold agrarian values and visions for the countryside and by politicians seeking to appeal to constituents; however the discourse is also being shaped by farmers who are actively engaged in agriculture, who are familiar with the challenges and opportunities of the industry, and who are looking for increased public support for their practice. Consequently, the convergence of these conversations should ultimately lead to the development of more realistic goals and expectations for the development of diversified agriculture in Hawaiʻi and its food self-sufficiency goals. This research has shown that policy makers, planners, and large landowners need to move beyond the rhetoric surrounding diversified agriculture and continuously engage with farmers on the land. Each of Hawaiʻi's counties faces unique pressures and opportunities that affect agriculture, from the availability of agricultural infrastructure and local food markets, to patterns of land tenure and development pressures. Development strategies aimed to increase 'diversified agriculture' and enhance the state's level of food self-sufficiency will vary across Hawaiʻi's distinct geographies; designing effective approaches will depend upon understanding and working within these distinctions. Planning documents that call for the preservation of agriculture because of its "importance to local lifestyles and the tourism industry" alongside goals of producing "at least 80% of the island's demand for fresh agricultural products" (COH, 1992), beg several questions: Is 80% a realistic goal? To what extent is agriculture in Hawaiʻi a lifestyle versus a livelihood for those engaged in it? Do our agricultural policies support the average, small-scale commercial farmer? When we speak about increasing food self-sufficiency and decreasing our reliance on external markets, are we aiming to meet the

island's demand for food products, which includes considerable demand from the island's tourism industry, or are we speaking about feeding local residents?

In conclusion, rural residents will continue to negotiate their lives and their engagement in agriculture and land-based practices within the constraints and opportunities posed by the state, market, and civil society. As a new industry, diversified agriculture will take time to develop, and it will likely emerge in unique configurations that will push traditional definitions of agriculture and agrarian economies, given Hawaiʻi's distinct rural trajectory and the political economy of agriculture in the islands. When government and private initiatives are designed to support the development of agriculture and maintain Hawaiʻi's rural character they should be developed through a consideration of these unique characteristics, and come out of continual conversations with individuals and rural communities in their place – who have and who are in the process of creating agricultural livelihoods and agrarian lifestyles.

Despite the desire to repopulate Hāmākua's landscape with hundreds of small family farms, the political economy of agriculture in Hawaiʻi poses significant challenges to that vision. Hawaiʻi's position within in a global agro-food system with its inherent challenges – due to economies of scale, high fixed capital and input costs, land and labor access, and market size – makes it a challenge to realize profits in a classical sense. Under the current economic scenario, with the majority of small farms earning under $25,000 annually, farming appears to be more of *lifestyle choice than a livelihood opportunity*. The disconnect that exists between Hawaiʻi's agrarian discourse and the reality of practicing agriculture is best captured by a local rancher:

> I would like to see the land protected and preserved for [agriculture], but the reality of the world is against that happening. The market values will dictate [land] use, and as the costs rise, fewer owners will actively be seriously [agricultural] producers. Rich people just don't want to work that hard and when what you raise doesn't cover the cost, it is hard to blame them. For me, it is a matter of squeezing a meager income out of our land, as a single full time employee here, and keeping the land in true [agricultural] production to keep our taxes at a minimum so that we can afford to keep it for the next generation to come. (Agricultural landholder in Hāmākua, pers. comm., 2007)

However, for some part-time farmers, agricultural revenue is an essential component of their income in a rural area where non-farm opportunities are low-paying and the diversity of employment options is low.

As Hawaiʻi becomes an increasingly popular destination for amenity migrants, many – including the rancher above – question the agricultural practices of newcomers and wealthy landowners. While non-commercial farmers (i.e., gentlemen farmers, hobby farmers) may be actively taking advantage of farmland preservation policies that were not intended for them, it may not necessarily be the case that these individuals, as a whole, are displacing commercial producers and pushing them out of the landscape. Research revealed that many of Hāmākua's in-migrants are agrarian-oriented and are working to build momentum for local foods and the local diversified agricultural economy. Furthermore, their impact on local resource and agrarian politics can be significant, given their cultural backgrounds, and the level of financial resources they contribute to local agricultural initiatives. Gentlemen and hobby farmers may be a convenient scapegoat when questions about the challenging nature of agricultural viability come up, however there are larger concerns about the location of Hawaiʻi's agricultural economy within a global agrofood network that cannot be overlooked.

It is clear from this research that agriculture in Hawaiʻi is laden with values and visions for its future, more so than any other industry. Despite agriculture's challenges, messages emanating from local government and residents alike urge support for Hawaiʻi's rural areas and local food producers. On a drive through downtown Honolulu or rural Hāmākua residents are confronted with bumper stickers to "Keep the Country Country" or "Buy Local it Matters." And the State of Hawaiʻi has gone so far as to modify its constitution to account for the importance of the industry to the local community. Over the course of this research project Hawaiʻi Island has witnessed large landowners devoting more land to diversified agricultural projects and increased investment flowing into agricultural infrastructure projects. If this trend continues it will be important to reexamine government and community goals for agriculture to assess the likelihood that target goals will be met. It is time to check our agrarian values and visions for Hawaiʻi's agricultural future against current realities and future projections for the industry, specifically in terms of food self-sufficiency. Questions to consider include: Should effort be directed towards developing Hawaiʻi's niche industries and specialty crops (e.g., tropical fruit, macadamia nuts, flowers, cattle) versus striving for import replacement in vegetable crops? As land becomes increasingly available to small producers, is the rehabilitation cost of former sugarcane land for vegetable production worth the return, or are orchard crops more suitable in these areas? A more

thorough understanding of the agricultural potential of an area (ecologically and socially) may facilitate sound public and private spending on local agricultural infrastructure.

Perhaps Hāmākua and Hawaiʻi in general, are more appropriately seen as places with tremendous agricultural *meaning* and not necessarily places with significant (commercial) agricultural production. The variable success of local agricultural initiatives and the continuous barriers to growth experienced by producers have led many to question the *economic* viability of diversified agriculture in Hawaiʻi, while the alternative and non-economic benefits of agriculture are increasingly becoming evident. As the demography of farming communities shifts, farming practices are becoming more diverse and imbued with alternative values. Traditional conceptions of 'agriculture,' 'farmers,' and 'farms' are being challenged as residents are engaging in agriculture for reasons beyond the pocket book. When farmers are classified in purely economic terms (e.g., as those individuals grossing over a specified annual amount), the full range of contributions being made by agrarian practitioners is overlooked (e.g., environmental benefits, financial investment in the local food system, the perpetuation of cultural food and farming practices, agroecological and nutrition education). While many government programs rely on traditional definitions of 'farmers' as commercial producers in order to determine an individual's right to access subsidies, this research has shown that when these rules are ignored it allows for hobby farmers, subsistence producers, and other part-time farmers to occupy rural areas and perpetuate the agrarian character of the region. Maintaining rigid definitions of these terms fails to account for the richness and possibilities inherent in alternative, diverse economies. New approaches and ways of understanding are needed to adequately assess both the role of agriculture in Hawaiʻi's post-plantation landscape and the needs of the diversity of farmers that have materialized in former plantation spaces. Remembering that hobby farms, gentlemen farms, subsistence farms, and commercial farms *are all farms* – particularly as seen by their owners. Some of these farms have classic economic value, while others force us to see their intangible values, and many have both.

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